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Volume XLVII

SEPTEMBER, 1914

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD

LORD & NAGLE COMPANY ~ BOSTON · MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

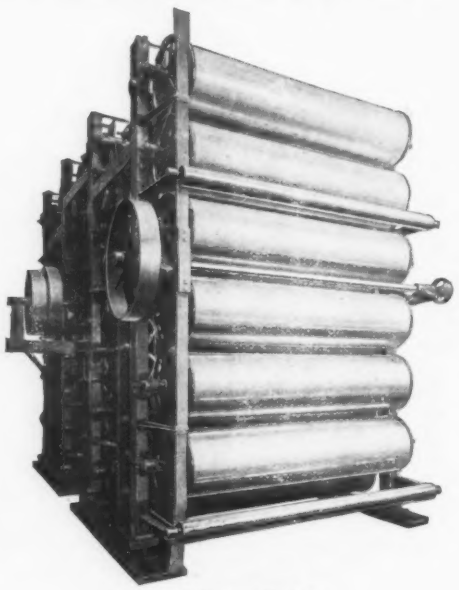
BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



Upright Drying Machine

ALL KINDS OF

Horizontal and Upright Drying Machines

With cylinders made from either the best English tinned iron or best Lake Superior sheet copper, fitted with our

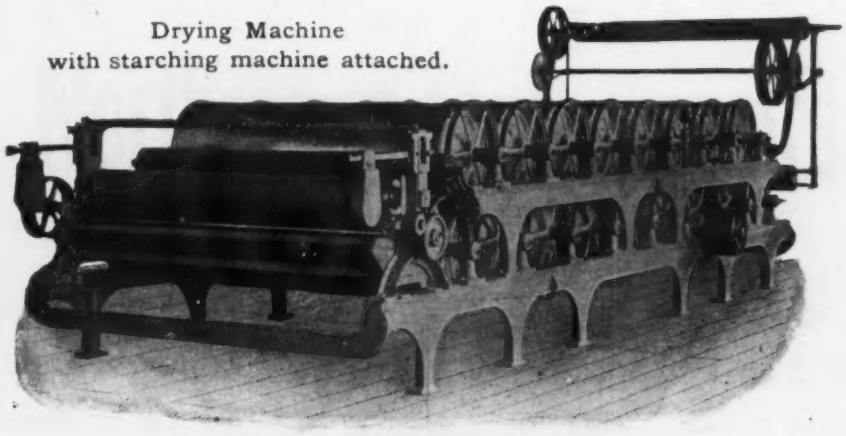
Patent Spiral Scoops

Bleaching Kiers with Patent Circulators

FOR

Raw Stock, Yarn, Woven and Knit Goods

Drying Machine
with starching machine attached.



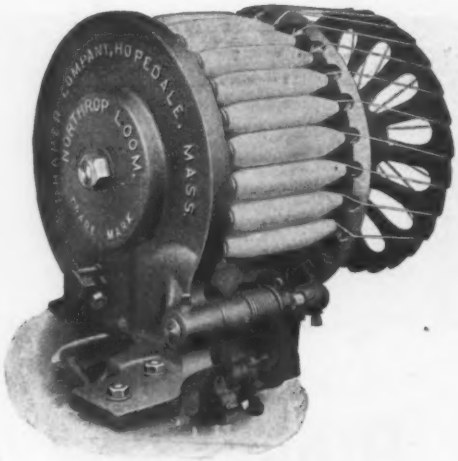
Bleaching,
Drying,
Dyeing,
Finishing,
Machinery

for all textile fabrics.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417 Industrial Trust Building.



NORTHROP LOOMS

TRADE MARK REGISTERED

EARN More Wages for the Weaver
Larger Dividends for the Mill

DRAPER COMPANY

HOPEDALE MASS.

Northrop Loom Repairs

TRADE MARK REGISTERED

We again call attention to the importance of purchasing Northrop loom repairs of the makers of the looms. We have spent thousands of dollars in fitting up moulding machines to insure the most uniform castings possible. It is false economy to buy such repairs of job foundries or other outside sources of supply.

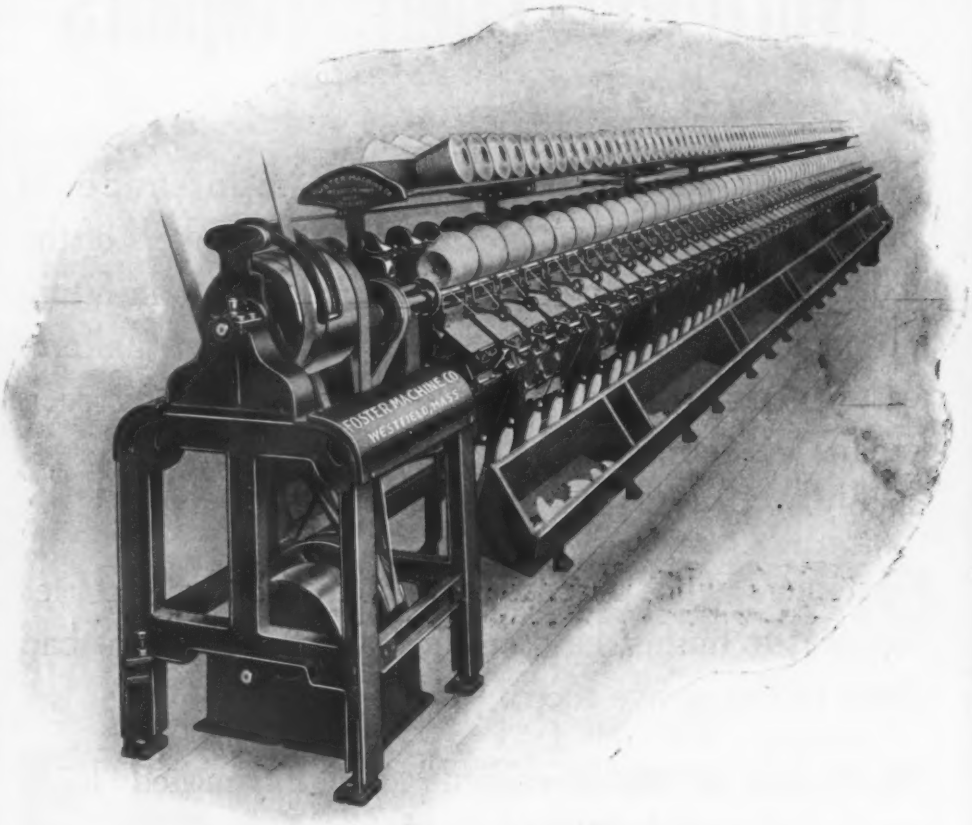
Customers who purchase of us avoid the troubles incident to misfits, hard castings and the resultant bad cloth in the weave room.

We carry several hundred tons of finished loom repairs in stock for the convenience of our customers.

DRAPER COMPANY

HOPEDALE MASS.

Foster Machine Co.



The Foster Model 12 differential attachment spaces the yarn on the cone in winding so as to secure in the Knitting process a light unwinding tension that does not change from start to finish of cone. ¶ This is *one* of the exclusive features that has made the Foster Finished cone acceptable to all Knitters.

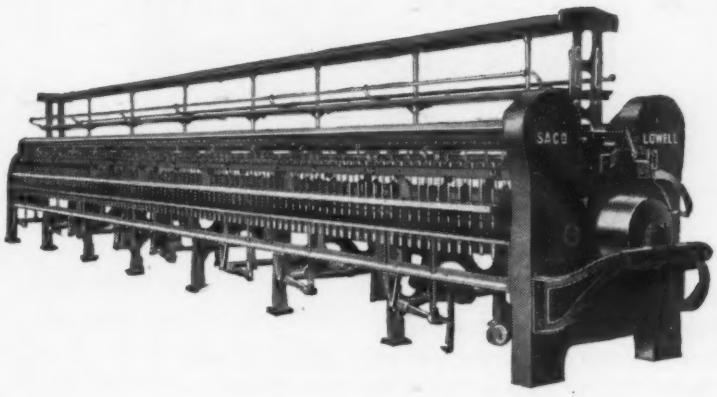
Office and Works

Westfield, - - Massachusetts

John Hill, So. Agent, Third National Bank Bldg., Atlanta, Ga.

Saco-Lowell Shops

TEXTILE MACHINERY



Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

COMPLETE COTTON MILL EQUIPMENT
Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms

WASTE RECLAIMING MACHINERY

WORSTED MACHINERY
Including:
Revolving Creels,
Gill Boxes
Drawing Frames,
Reducing and Roving Frames,
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

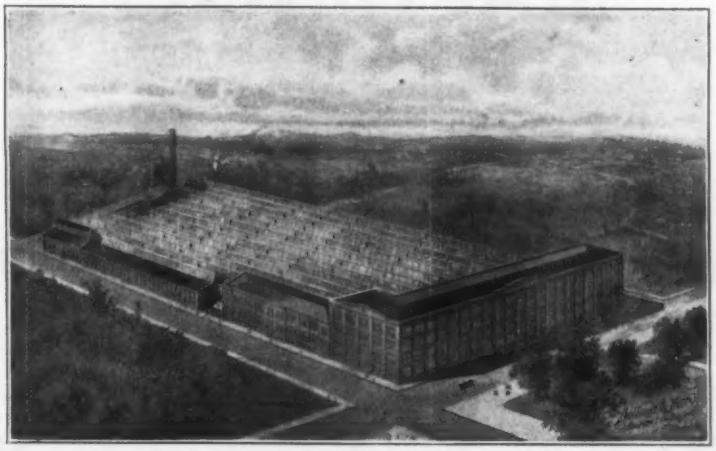
MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.

When planning a humidifying installation for next winter don't overlook the summer months



DUPLAN SILK MILLS

A system which performs a single duty of humidifying might do it ever so well when only humidity is needed.

But in the whole year consider how few such days there are. To maintain right conditions every day in the year for running machinery, handling textile fibres and the working of operatives four functions are necessary.

You find them all in the Carrier System of Air Conditioning —Heating, Cooling, Ventilating and Humidifying.

See that your new mill is

"CARRIER EQUIPPED"

Have you seen the catalog?

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

NEW ENGLAND
E. T. Lyle, 1862 Beacon St.
Brookline, Mass.

CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
732 Real Estate Trust Bldg.

BUFFALO, 490 Broadway

COTTON MILL MACHINERY

Carding Spinning

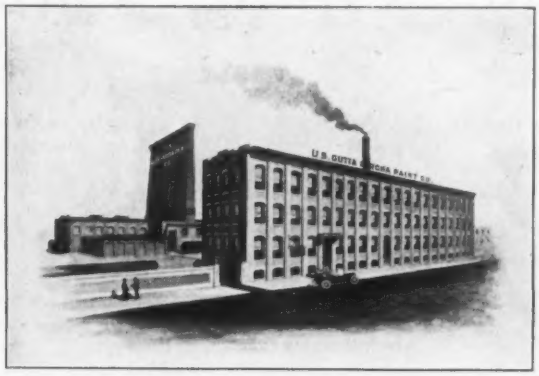
MASON MACHINE WORKS

Drawing Weaving

Executive Office, 77 Franklin Street, Boston, Mass.
Arthur R. Sharp, Treas.; Thomas G. Cox, Agent

Southern Office, Greenville, S. C., Edwin Howard

Works at Taunton, Mass.



THIS is the plant which makes the original Mill White, the paint which made a trade name of the words "Mill White."

RICE'S MILL WHITE

is the only oil paint (without varnish) giving a glossy, tile-like finish. It will give you 19% to 36% more light than you had before. It can be washed like tile. It will not collect dirt, germs and odors like a flat paint. It will not scale and require frequent renewals like a cold water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. *It stays white longer than any other gloss paint.*

There is no substitute for Rice's Mill White. No other paint manufacturer can use the Rice process. No imitation has the elastic, permanent qualities of Rice's Mill White. For ten years it has been unequalled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

Ask for a copy of our booklet "More Light." *Write today.*

U. S. Gutta Percha Paint Co.
20 DUDLEY ST., PROVIDENCE, R. I.

Parks' Piping Parables

Efficiency in Heating

One of the most efficient ways to heat the modern factory building is by means of the

Parko System
of Forced Hot Water
Circulation

Where this can be combined so that the sprinkler pipes may be made to do the double duty of heating and sprinkling, then efficiency has spoken an additional word.

It is now possible to combine the two systems—and if your new factory presents these two problems, there is a possible chance of saving money and space.

Each case is figured on its merits. Some show a considerable saving and some do not. We would like to tell you more about it.

Feed Water Heaters

Here is a little something about feed water heaters.

Suppose you have a boiler pressure of only 60 pounds, and the water from the pond is at the temperature of 35° F.

If, before the water enters the boiler, you could raise its temperature to 210° F by means of heat units now thrown away, like exhaust steam from engine, pumps, etc., do you know how it would affect your coal pile?

'Twould save seventeen and one-half per cent of it—and the cost thereof in hard iron dollars.

Every good operating engineer and manufacturer knows that on general principles putting in a feed water heater saves money.

But few realize the extent to which this very principle of the feed water heater may be extended to manufacturing processes about the plant.

The virtue of the feed water heater consists in the principle of using steam twice—and that principle may be used for boiling, drying, dyeing, heating, slashing, finishing or what not. It's all a matter of figuring it out.

Piping Free of Cost

I mean just that:—and this does not smack of the sort of proposition of an extra pair of pants with a suit of clothes.

Not so.

The nature of your business is complex. Your affairs are too large to bother with such minute things as heat units. You wouldn't know a heat unit if you met it coming up the street.

I'm not sure that I would.

But we do piping:—piping that in a term of years is a self-supporting, head erect sort of individual. More than that, we chaperon it; we live with these our offspring; acknowledge them as our own; praise them when they are good and spat their hands when they are naughty.

Or else aver that their yellow streaks didn't come from *our* side of the house.

We couldn't do this class of work without being engineers as well as contractors in this line.

The profit that attaches to just the piping engineering in your plant does not appeal to the ordinary mill engineer.

He, too, is engaged on bigger things—things that are worth more money to you to have him specialize in.

But if we can contract and engineer too, we can afford to specialize in this work.

That is why we are engineers and contractors—all in one, and that is why we can boldly make the statement that there are many jobs that are actually free of charge to our customers in that they pay for themselves many times over before they are worn out.

—÷—

¶Something for nothing always leads to something missing.

¶There are mean things enough in the world done unintentionally or thoughtlessly; enough not to warrant those done deliberately.

¶Breathes there a man with soul so dead, who never to himself hath said—"This is a railroad—soak it!"

PARKO

The G. M. Parks Company, Fitchburg, Massachusetts

23,568 in Operation

Did you notice these figures in the Turbo advertisement on page 11 of the July Textile World Record?

Did you notice that 153 factories are using these Turbo-heads?

Did you stop to think what it meant that 40 of these factories had previously used some other system of humidification?

And that 30 factories had given us repeat orders for additional systems?

Why So Many Turbos in Five Short Years?

Because the Turbo Humidifier is simple, shadowless, neat, has few parts, can be put in out-of-the-way places in cramped quarters.

Because the Turbo Humidifier is easily and quickly installed, can be taken apart for quick inspection and can be cared for by any handy man.

Because the Turbo prevents dust and lint, cannot clog or overflow, uses pure water and uses it but once.

Because as a mill superintendent wrote to a mill owner: "*The Turbo Humidifier System, used in our mill for two years, is very effective, * * simple to look after, requiring very little attention and has not cost us one cent for repairs yet.*"

Because as another mill wrote: "*The installation (1400 heads) was made following the other satisfactory experiences in another mill operated by the same treasurer's office and in both places we have had very satisfactory results.*"

If you want satisfactory results in humidification why not send for a Turbo catalog or a Turbo engineer? Either or both will be sent without obligation to you.

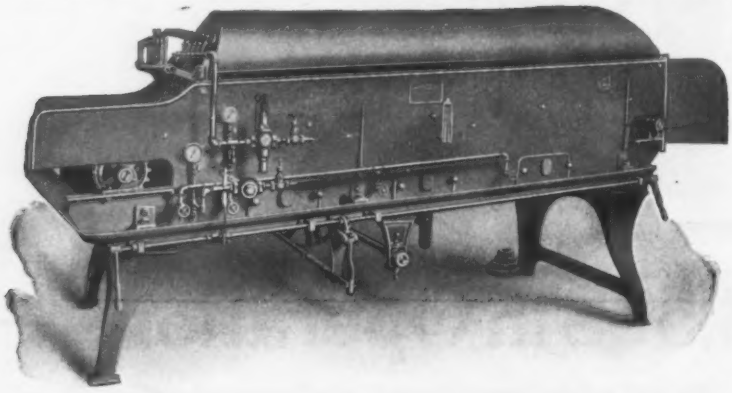
The G. M. Parks Company

Fitchburg, Mass.

Southern Office, 200 Commercial Bank Building. J. S. Cothran, Mgr.

The Yarn Conditioning Machine

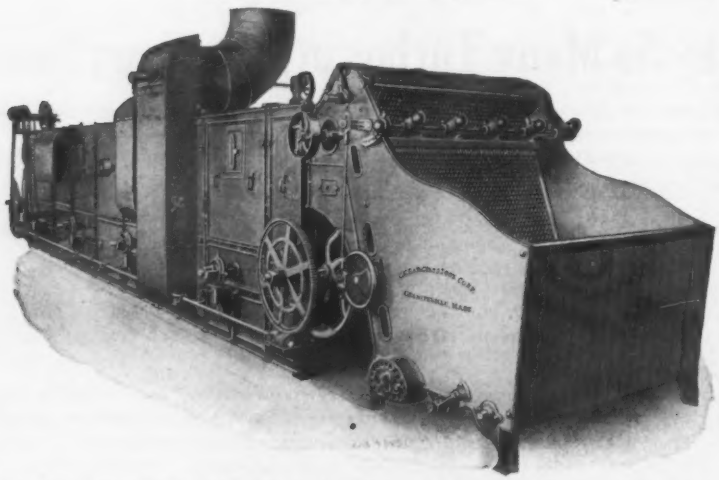
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

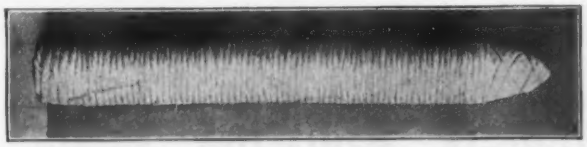
Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



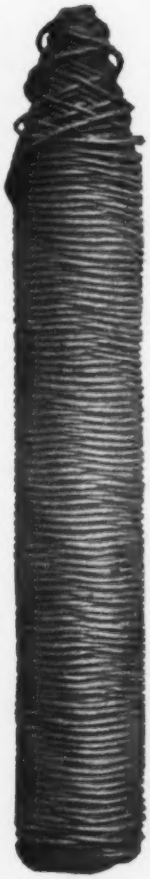
Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

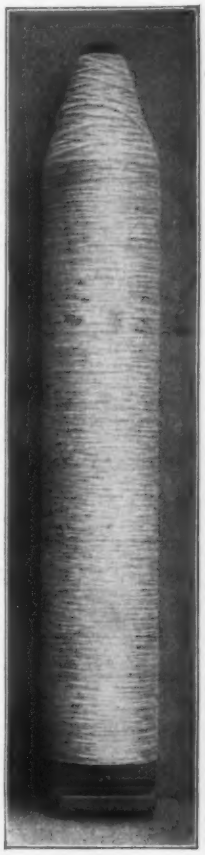


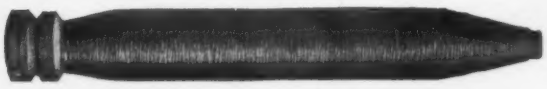
No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.





No. 1 No. 4 No. 3

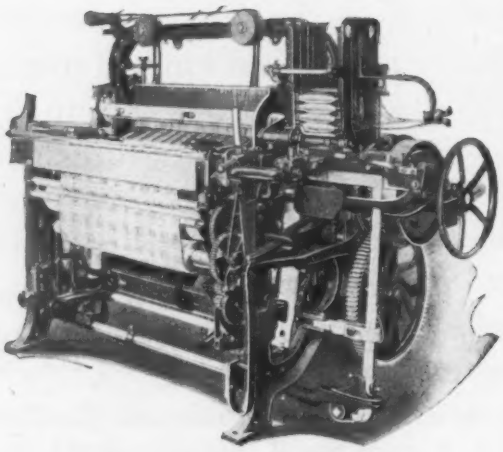
OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery

WINDERS ESPECIALLY

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

OUR NEW

Hand-Threading Shuttle

Is the Simplest—Most Effective and Most Quickly Threaded Shuttle Made

NOTE THESE POINTS:

¶ Can be operated with the finest silk or the coarsest filling. ¶ Will not unthread when the yarn "balloons." ¶ Provision is made for easy removal of lint that may accumulate in the threading device. ¶ Their is room for the insertion of felt for tension purposes.

¶ It complies with the Massachusetts sanitary shuttle law, and as other states are likely to enact similar laws, it is well to anticipate trouble by adopting this new shuttle.

Trial orders solicited.—Satisfaction guaranteed.

Paper Cop Tubes Cones and Shells
Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons
For All Textile Purposes

American Textile Specialty Machinery Co.
670 Eddy Street - Providence, R. I.
13th Street and Boulevard, Long Island City

The Hunter

NO. 10
FULLING
MILL

DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES

BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

ECONOMY AND SAFETY

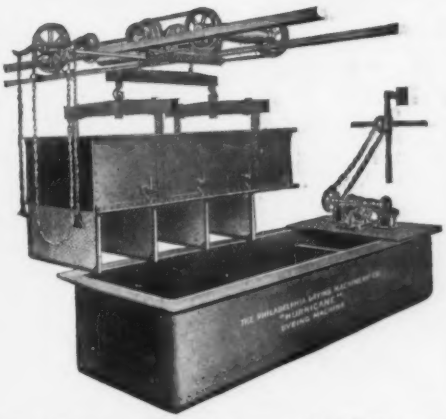
YOU GET BOTH WITH

"Hurricane" Machinery

FOR

HOSIERY
SKEIN
YARN
SLUBBING
etc.

The best and mosteconomical Dyeing Machines

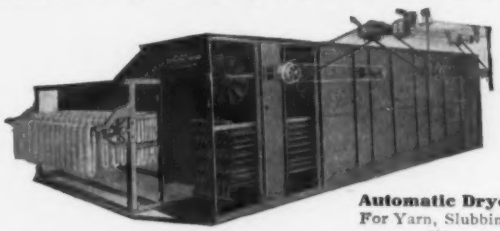


BETTER DYEING at LESS EXPENSE

—

Give us an opportunity to prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types



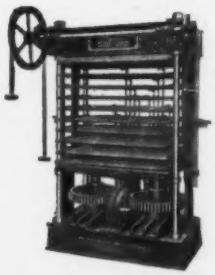
Automatic Dryer
For Yarn, Slubbing, etc.

Complete Equipments for

Dyeing
Scouring
Bleaching
Carbonizing

FIRE-PROOF DRYERS

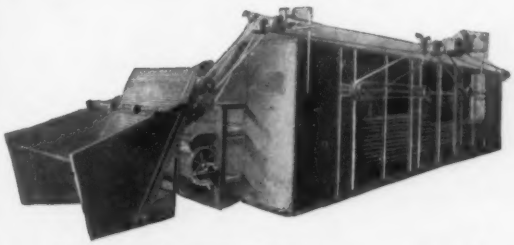
STEEL CONSTRUCTION
INSULATED WITH ASBESTOS



Power-Screw and Hydraulic
PRESSES

Fans

Motor and Belt Driven



AUTOMATIC STOCK DRYER
(With Sectional-Continuous Conveyor)
For Cotton, Wool, Hair, Rags, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

When buying incandescent lamps consider——

MAZDA **CARBON**

An actual photograph showing how much more light is given by a 100 watt Mazda than by a 100 watt Carbon lamp. Both are used with the same reflectors. Note the great difference in the light thrown on the cards.

Quantity of Light and the Amount of Production

The average industrial plant does enough work under artificial light to make it seriously affect the amount of production if each workman does not get sufficient light to keep pace with his daylight production.

Westinghouse Mazda Lamps

provide a sufficient quantity of good quality light at the minimum cost so as to enable each workman to do the maximum amount of work. The new improved type of Mazda lamp in sizes from 400 to 1000 watts gives nearly six times as much light as the old style Carbon lamps for the same amount of current. In the smaller sizes Westinghouse Mazda lamps are from three to four times as efficient as the old style lamps. In other words you can get from three to six times as much light in any part of your plant without increasing the current consumption.

Our engineers can show you how to use Westinghouse Mazdas—a service which costs you nothing. Send for our booklet on Industrial Lighting.

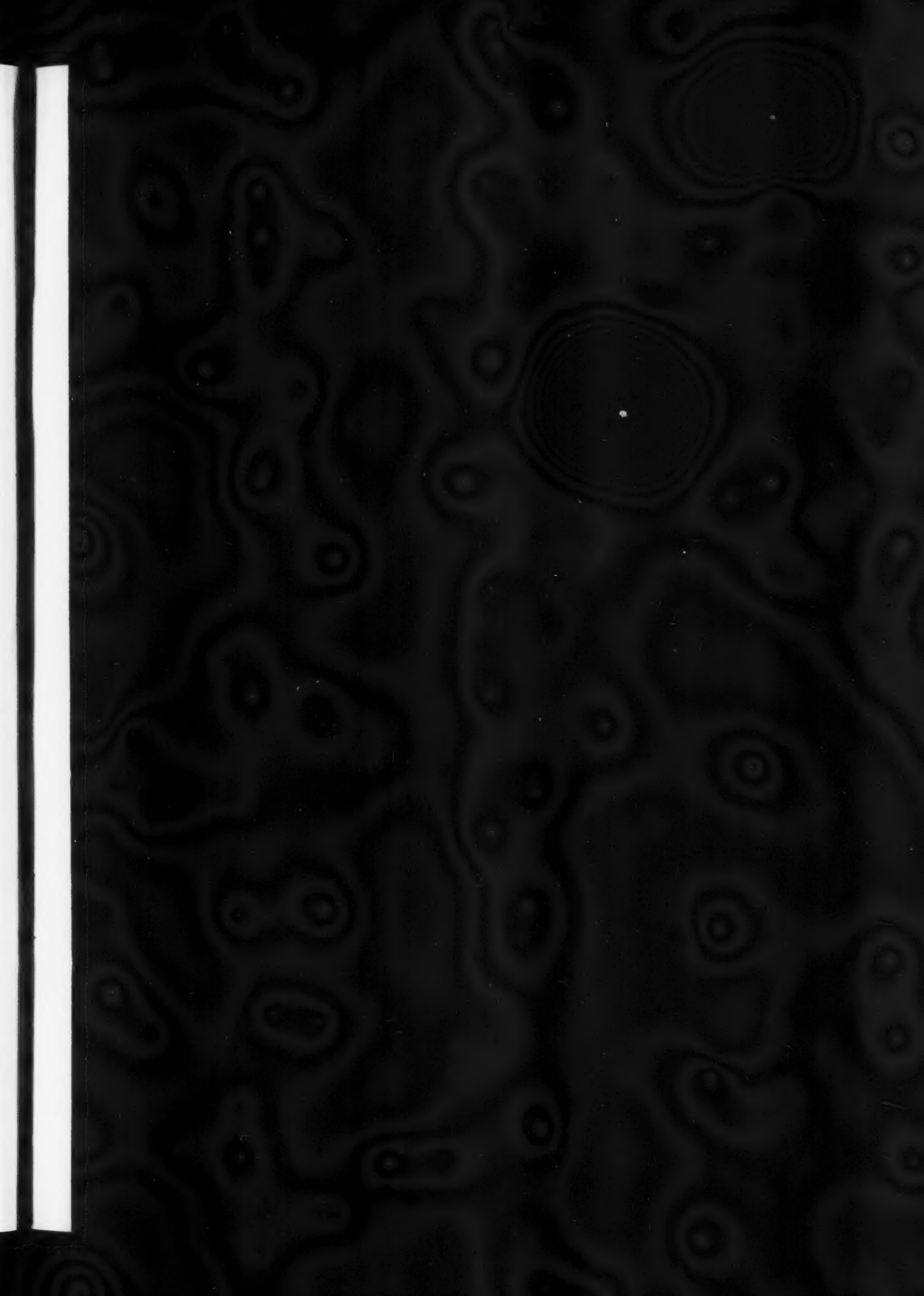
"Guaranteed by the Name"

Westinghouse Lamp Company

Atlanta	Cleveland	Los Angeles	Portland
Baltimore	*Dallas	Memphis	Salt Lake City
Boston	Denver	New York	San Francisco
Buffalo	Detroit	New Orleans	Seattle
Butte	*El Paso	Philadelphia	St. Louis
Chicago	Kansas City	Pittsburg	Syracuse
Cincinnati			

*Westinghouse Lamp Corporation

Distributers of McCandless Mazda Miniature Lamps



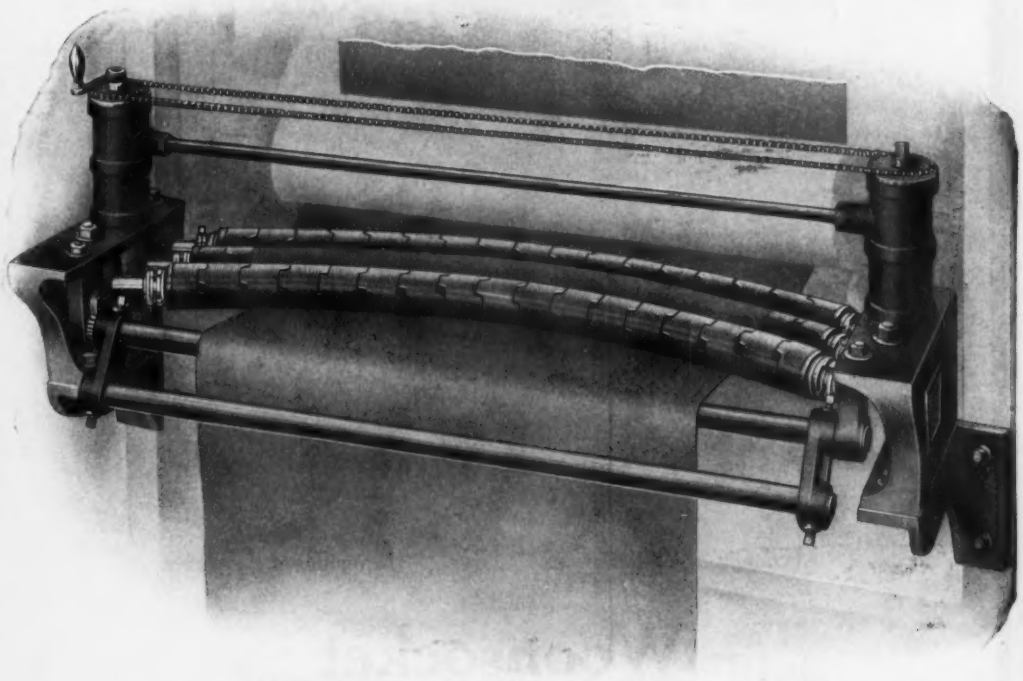
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander

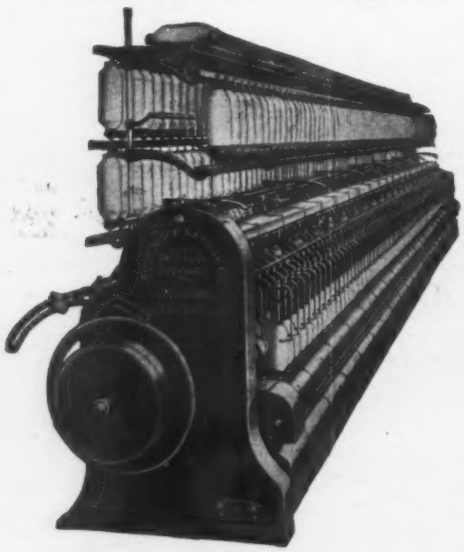


Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Cotton Machinery by Specialists



With Latest Improvements

Maximum of Efficiency Minimum of Repairs

Woonsocket Machine & Press Company

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

TABLE 1 RELATIVE AMOUNTS OF POWER CONSUMED IN FRICTION

Bearings	100 Feet per Minute		300 Feet per Minute	
	77 Deg	100 Deg.	77 Deg.	100 Deg.
Ball	1	1	1	1
Roller	2.2	2.5	2.7	3
Babbit	3	3.6	4.5	4

The Ball Bearings Used in This Historic Test Were HESS-BRIGHT—*And No Other*

There seems to be a disposition on the part of some manufacturers of ball-bearing hangers other than HESS-BRIGHT to connect the name of their bearings with the famous four-year tests conducted by Professor Thomas at the University of Wisconsin, which proved the superiority of ball bearings over babbit and roller bearings for line shafting.

But as a matter of plain truth, HESS-BRIGHT Ball Bearings were used exclusively throughout the tests. HESS-BRIGHTS were chosen because they are and were the leaders in their field, and because all previous records showing ball bearing superiority had been made with HESS-BRIGHTS.

Remember, when you buy ball bearing hangers and expect them to live up to the most favorable claims made for them, on the basis of this historic test, that to be *sure* you will get such results you should specify HESS-BRIGHT and no other.

Write us for a copy of the Paper, "Comparative Tests of Three Types of Line Shaft Bearings," read before the American Society of Mechanical Engineers, and get the full details of this test.

The Hess-Bright Mfg. Co.

Front St. and Erie Ave., Philadelphia, Pa.

HESS-BRIGHT

HB DWF

BALL BEARINGS

A. W. BUHLMANN

Textile Engineer

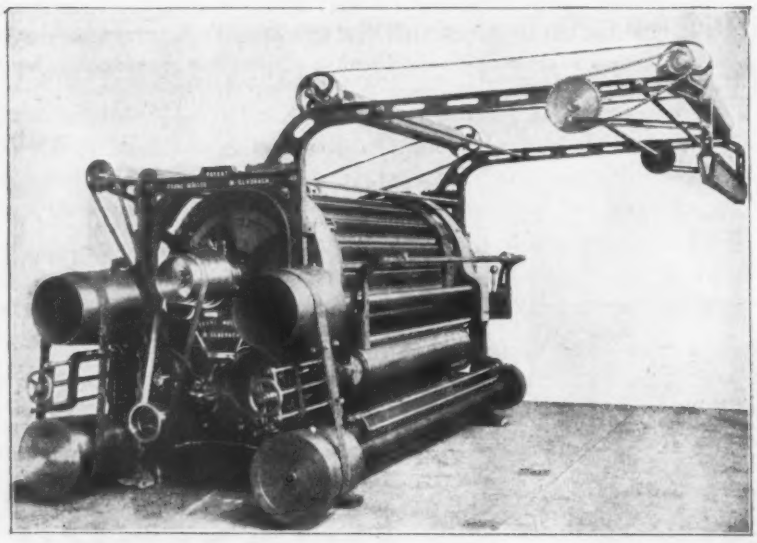
200 FIFTH AVENUE - - NEW YORK

REPRESENTING

FRANZ MUELLER

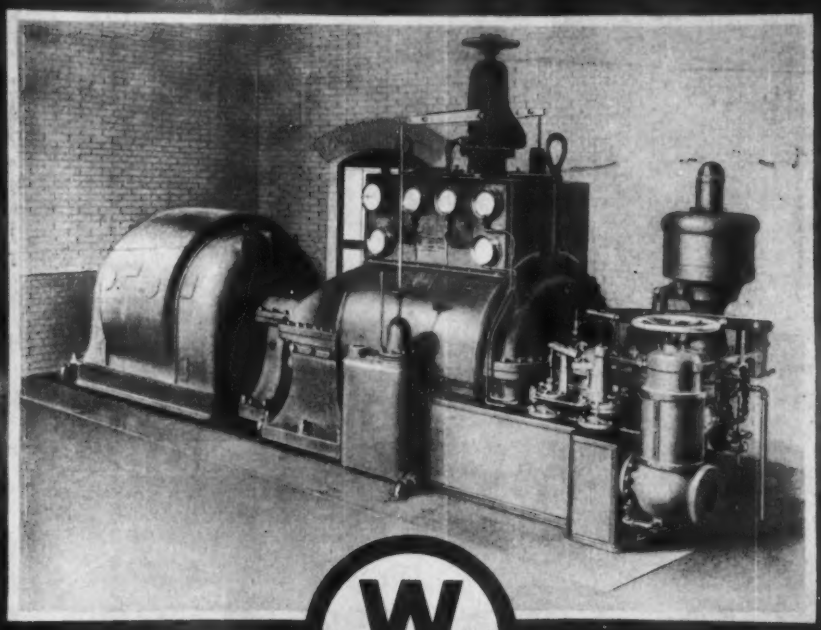
MASCHINENFABRIK

M. GLADBACH, Germany



The Mueller 36 Roller Universal Napper

Used by the Leading Firms in America and Europe in preference to any other machine



W
WESTINGHOUSE ELECTRIC

More Than 150,000 H. P. of Westinghouse Turbines are driving textile mills

The textile manufacturer who specifies Westinghouse Turbines is assured of getting successful and efficient service from his power plant, because of the Westinghouse Company's long and extensive experience in this field.

All types—high pressure, low pressure and bleeder turbines—can be supplied. We will gladly assist you in selecting the proper type to suit your special needs.

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.

FIG. 20.
Extra heavy, best quality cotton duck.
Leather binding.

THERE
IS A

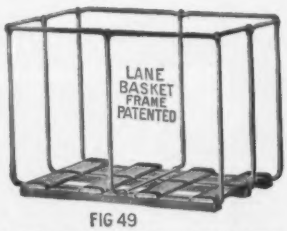


FIG 49
Lane indestructible frame with renewable hard wood shoes.
Made also with iron shoes.

LANE BASKET

OR

TRUCK

FOR YOUR ESPECIAL USE

WRITE FOR CATALOG

MANUFACTURED BY

FIG. 22.
Round taper style.
For bobbins, waste, etc.

W. T. LANE
& BRO.

POUGHKEEPSIE
N. Y.

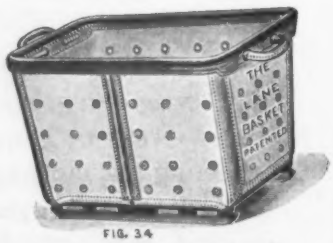
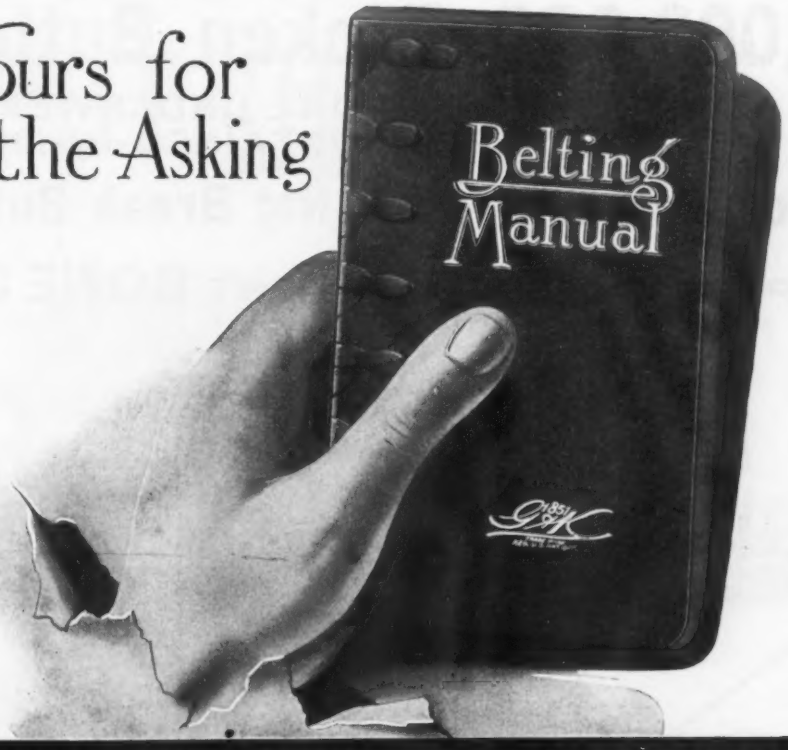


FIG. 34
The Lane Basket
is a long-lived, quick steamer.

Yours for the Asking



SHOULD BE IN THE HAND OF EVERY BELT USER

The "*Belting Manual*" gives you in a nut-shell all the information you need about Belt Transmission.

It gets right down to rock bottom principles—every one of its 96 pages is a veritable nugget of invaluable information, suggestions, mechanical rules, tables, etc. In fact, the "*Belting Manual*" is the most complete and authentic book of its kind—a book you cannot afford to be without. You will want to use it every day. Just one little hint may save you hundreds of dollars. Worth while?

Send for a copy and keep it handy for immediate reference. Use the coupon or your letterhead. The book will be sent post-haste and post-paid.

The Graton & Knight Mfg. Co.

OAK LEATHER TANNERS AND BELT MAKERS

WORCESTER, - MASS.

BRANCHES

Atlanta, Boston, Chicago, Cleveland, Detroit, Fall River, Kansas City, Milwaukee, Montreal, P. Q., New Orleans, Minneapolis, New York, Philadelphia, Pittsburg, Portland, Or., San Francisco, Seattle, St. Louis

Selling Agents for Texas. The Graton & Knight Mfg. Co., of Texas, Dallas, Texas

COUPON T.W.S.-9 14

The Graton & Knight Mfg. Co.
Worcester, Mass.

Gentlemen: Send the "Belting Manual" post-haste and post-paid.

Name.....

Address.....

.....

Position.....

Company.....

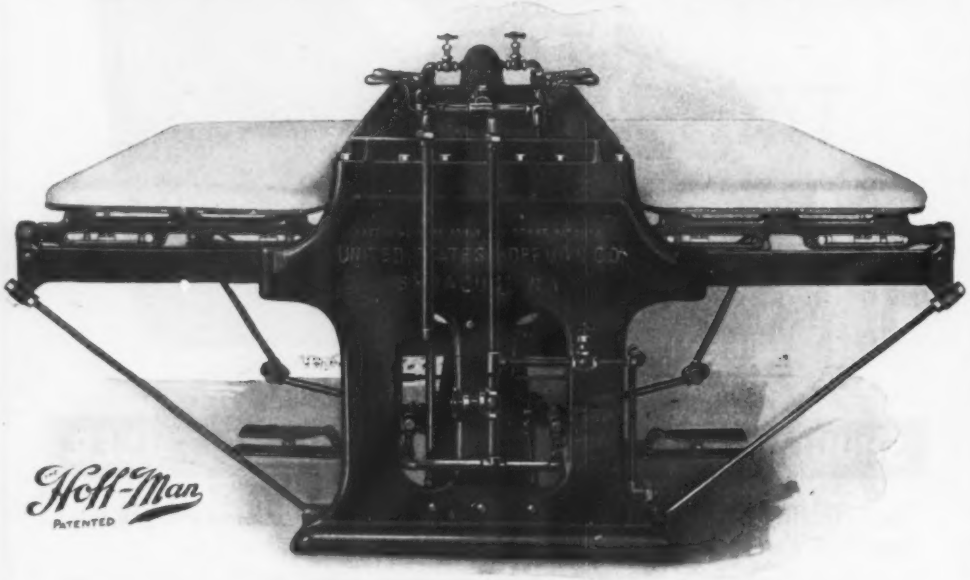
5,000,000 Broken Buttons

THAT'S-THE-LOSS-ONE-UNDERWEAR MANUFACTURER-SUSTAINED-IN-1913

The "Hoffman" Does Not Break Buttons

AND

IT PRESSES EVERY GARMENT BONE DRY



Hoff-man "FFF" Underwear Press

CAN-BE-INSTALLED-ANYWHERE-IN-YOUR-MILL

IT'S-THE-LIVE-DRY-STEAM-METHOD OF-PRESSING

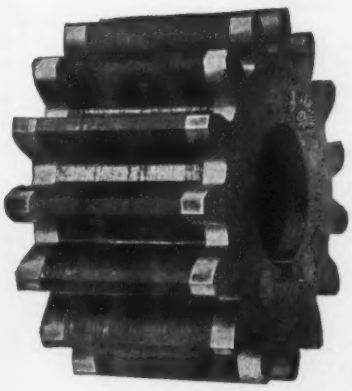
IT'S-THE-WAY-MOST-UNDERWEAR-IS-PRESSED

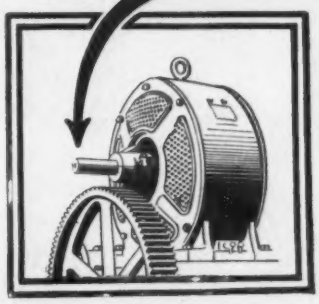
GET-FULL-INFORMATION

United States Hoffman Co.

Syracuse, N. Y.

PUT THIS THERE





and you will have put over a good one on noise, vibration and upkeep costs.

Prominent users consider New Process Pinions a necessity, not a luxury.

Here is what—MEN WHO KNOW—say about noise:—

"Noise comes from vibration. To eliminate noise, eliminate vibration. Perhaps the worse sinner, the most noisy of all machine parts, is the gear."—Editor American Machinist.

"When you find noisy gearing, bumping, squeaking, or grinding contacts, there energy is being wasted. Noise prevention is generally waste prevention. You can make your factory noiseless."—Editor, Factory.

"One of the surest indications of perfection of action in any piece of machinery appears in noiselessness of operation."
—Editor Cassier's Magazine.

Any man who has made a study of noise and quiet and their relation to work will tell you just that. Quiet is by far the best condition.

Write for catalog—"Noiseless Gear Driving"

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

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NEW PROCESS GEAR CORPORATION

SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

95

Another recent installation

400 "Ideal" Automatic Looms

on 5 harness sateens

These looms were installed as the result of a test during which the superiority of Stafford Looms over all competitors was clearly demonstrated

THE STAFFORD COMPANY

READVILLE, MASS.

FRED H. WHITE, Southern Agent - - Charlotte, N. C.

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

FACTS

In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
B—Production uniform day after day (No big jumps.)
C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

STUART W. CRAMER

50 Church St.
New York

Charlotte, N. C.

Tremont Bldg.
Boston, Mass.

The logical drive
for your Textile Machines

MORSE Silent Chains represent the logical drive for your Textile Machines where these points are considered: (1) Efficiency, (2) Durability, (3) Economy.

(1) In *Efficiency*, they stand supreme, a sustained 98 to 99% being unapproached by any other system for transmitting power.

(2) In *Durability*, they compare favorably with any system, instances, not uncommon, of 10 to 12 years service without repairs being recorded.

(3) In *Economy*, they again stand alone, as their saving of power, compared to other systems, is sufficient to pay back their entire first cost in from one to three years.

We will gladly co-operate with any textile manufacturer or engineer in working out power transmission problems. Literature, including Publication No. 12, sent free.

Morse Chain Company, Ithaca, N. Y.

BOSTON, 141 Milk Street NEW YORK, 50 Church Street

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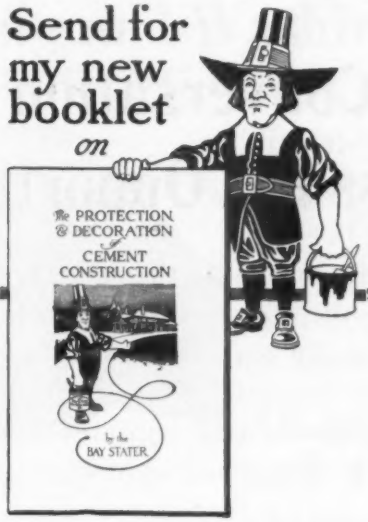
Send for my new booklet *on*



IT TELLS YOU HOW TO CUT DOWN LIGHTING BILLS

Develop the full efficiency of artificial lighting by coating all interior surfaces with

BAY STATE
BRICK AND CEMENT COATING

It positively radiates light. It gives you back almost double the artificial light in shops and factories—a mighty reflection from walls, ceilings and floors, banishing shadows, cutting down errors, increasing the efficiency of every spot in the plant—*reducing your lighting bills.*

May we tell you the whole story? Let us tell you how

Bay State Brick and Cement Coating

not only radiates light, but renders cement construction damp-proof, flake-proof, wear-proof (on floors) and will *stay where paint wont.*

Write for our newly issued Book NOW

WADSWORTH, HOWLAND & CO., Inc.
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Tear out and fill in carefully.

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Please send without any obligation on my part free booklet on the subject of cement coatings.

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General Conversation to Meet a Possible Opportunity

¶ We don't have bouquets to throw away, neither do we hand you gold bricks. We are sincere in our presentation of what we are confident is the *only successful* and superior Artificial Silk Winder in the market. The use of the machine will *present to you* all the *merits* that volumes of words could not tell you, and you will discover and appreciate them even more than we can say.

¶ **Hosiery, Underwear** and **New Knit Fabrics** that *require* **Winders** for **Artificial Silk** from the skein to the bobbin and all other types of winders.

¶ For **Dress Goods** and **Men's Wear** that require skein yarns we have the *Variable Speed Machine* that always has been successful and has made its reputation years ago.

¶ **Pinless Warpers** and **Skein Spoolers** also are specialized for the work.

¶ **Towelling:** The *Chain Beamer* and *Warp Splitter* and the *Cotton* Skein Winders. **This Winder** is for *Tender Bleached Yarns* and high speed production.

¶ **Tapes:** Our system of Warping and handling of Tapes to prepare and make up for the trade, should interest many who do not have or use the "Philadelphia" system and principle of working.

¶ We also make other lines of machinery for kindred use in textile fabrics.

¶ The few appliances mentioned at this time may interest some prospective buyer and we are open to sell. *We know how to build machines and can show you the best and quickest method to save time and secure results.*

JACOB K. ALTEMUS

TEXTILE MACHINERY

2844 North Fourth St., Philadelphia, Pa.

Rotary Dyeing and Washing Machine

CYLINDER CONSTRUCTED WITH 2 OR 3 COMPARTMENTS

This new type of machine has proven a great success. The cylinder is built of all wood or non-corrosive metal, according to kind of work intended for.

All types of Dyeing and Finishing Machines for Hosiery.

SMITH DRUM & COMPANY

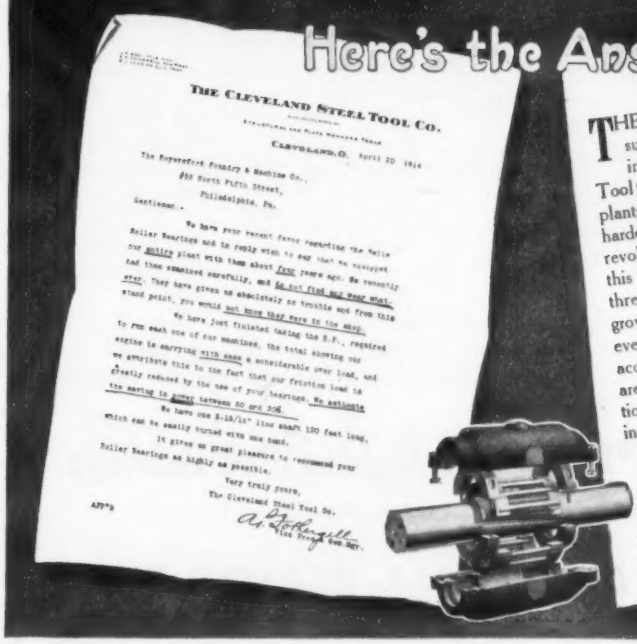
"Builders of The Best"

Southern Agent
H. G. MAYER, Realty Bldg., Charlotte, N. C.

PHILADELPHIA, PA.

What's the Life of Sells" Bearings?

Here's the Answer



THE CLEVELAND STEEL TOOL CO.

CLEVELAND, O. April 20 1914

The Royersford Foundry & Machine Co.,
501 North Fifth Street,
Philadelphia, Pa.

Gentlemen:-

We have your recent favor regarding the Sells Roller Bearings and in reply wish to say that we equipped our Quincy plant with them about four years ago. We recently had them examined carefully, and do not find any wear whatever. They have given us absolutely no trouble and from this stand point, you would not know they were in the shop.

We have just finished taking the H.P., required to run each one of our machines, the total showing our engine is carrying with ease a considerable over load, and we attribute this to the fact that our friction load is greatly reduced by the use of your bearings. We estimate the saving in power between 20 and 30%.

We have one 3-15/16" line shaft 150 feet long, which can be easily turned with one hand.

It gives us great pleasure to recommend your Roller Bearings as highly as possible.

Very truly yours,
The Cleveland Steel Tool Co.
A. F. Hoffman
Vice Pres. and Gen. Mgr.

APP'D

THERE'S a structural reason for the success of "SELLS" Roller Bearings in the plant of the Cleveland Steel Tool Company—and the hundreds of other plants in which they are running. The hardened and ground carbon steel rollers revolve on a high carbon steel *split* sleeve—this takes any *initial* wear, but after about three weeks' running, when everything has grown accustomed to the pace, this wear, even, ceases entirely, as evidenced by the accompanying letter. "SELLS" Bearings are almost a "first cost, last cost" proposition. Let us show you a saving of power in your plant, similar to that in paragraph 2.

Royersford Foundry & Machine Co.

56 No. Fifth St., Philadelphia

Also manufacturers of Punches and Shears, Grinders, Power Transmission Machinery and "Rollertine," the Roller Bearing Lubricant.

For High Speed Small Pulleys

In the textile mill there are many exacting needs for high-speed, small-pulley belts. Goodyear experts have investigated the various conditions in these places.

They have designed belts to meet them all—a belt for each specific purpose.

And then these same experts have superintended the making of each belt by master workmen. By exhaustive laboratory tests they have proved the high quality of rubber and fabrics. By master methods and equipment they have produced belting to measure up to every service requirement—belting that obviates breakdowns while delivering the maximum power.

There's a vast differerence between belt "price" and belt *service*. One is what you pay; the other is what you get. And *service* is *real* economy. That's the thing to consider when buying belting.

"Jove" Belt

Designed especially for high-speed and small-pulley conditions. Hard weave fabric and fine Para rubber make this belting flexible. Hugs the pulley tightly at all times. The stretch is taken out in the making—no shut-downs to readjust belting. A belt of unusual service.

"Klingtite" Belt

A fine transmission belt for reasonably good-sized pulleys. Won't slip. Won't stretch. Won't sag. Made to meet exacting conditions. A high-grade belt with a fine friction surface and great pulling power.

Packings and Valves

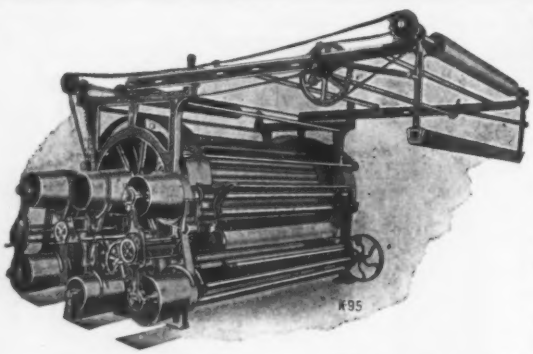
Goodyear Packings and Valves for every pressure and purpose. Designed and manufactured with all the skill and quality that mark all other Goodyear products.

Goodyear Service

Consult Goodyear experts before you buy belting, packing or valves. Learn what it means to get the very product for the very purpose. The Goodyear Efficiency Department will be glad to confer with you at any time, without charge or obligation. Remember that Goodyear quality dominates in this field as in Tiredom. Ask questions. Put your problems up to Goodyear. (1630)

GOODYEAR AKRON, OHIO
Rubber Belting

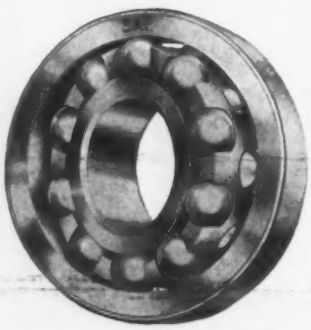
THE GOODYEAR TIRE & RUBBER CO., Mechanical Goods Dept., AKRON, OHIO
Toronto, Canada London, England Mexico City, Mexico Write Us on Anything You Want in Rubber



Napper Bearings

This bearing was in continuous service for three years on a Ball Bearing Napper. The speed at 1500 r. p.m. for 9000 hours, under severe service, means 1,010,000,000 revolutions without a sign of wear or fatigue.

S. K. F. on Worker Rolls means accurate setting of rolls, uniformly improved nap on the goods.



The power saved on the worker rolls is 30 to 45 per cent of the total power required to drive the machine.

For increased production, improved nap, no bearing trouble, specify

SKF Self Aligning Ball Bearings

Have you the Ball Bearing Textile Bulletin?
Send for No. 14-M

SKF BALL BEARING CO.
50 Church St., New York

BIRCH BROTHERS

ALBERT BIRCH, TEXTILE MECHANICIAN

SOMERVILLE, MASS.

"Coronation"

Piece-End

Sewing Machine

Sent on trial most anywhere

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

Send for Circular

Starch Mangle.—This is the two-roll machine, with brass and rubber rolls. Mangles built with rollers of any material or number desired. Send for circular.

Also Makers of

Dyeing and Finishing Machinery

Scutchers, Openers, Folders, Crabbing and Soaping Machinery

LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery

For the Manufacture of

Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

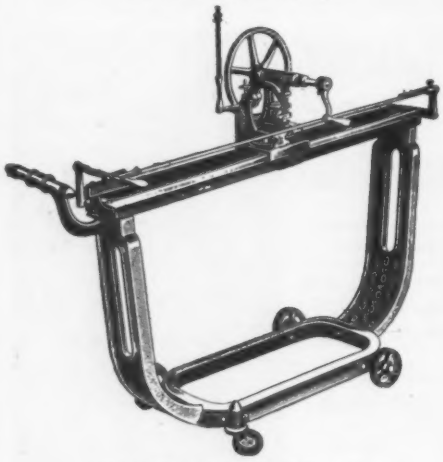
Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

It Makes Perfect Seams,

Even when run by Low-Priced Help



No. 1 Portable Hand-Power Railway Sewing Machine

For the finishing processes at your Shears, Gigs, Calendars, Printing Machines, etc., this machine will be found especially desirable, as it is easily moved about, and sews a firm chain-stitch; can be easily removed after the goods are finished.

When a seam is finished, the head is released by a hand nut, each seam must be perfectly straight, can be sewed very near the edge; taking out the seam saves waste; each piece of cloth is stretched alike, the cloth comes out even—these things are not possible by any other method.

These machines are built of different lengths and will sew wet or dry, thick or thin goods.

Send for Catalogue of our Sewing Machines.

Dinsmore Manufacturing Co.

Salem, Mass., U. S. A.

Are You Securing Maximum Production?

Many Manufacturers Are Not

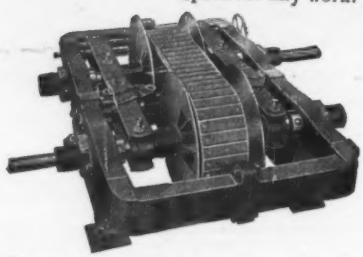
WHY?

Because—Often they are manufacturing on one machine several grades of goods and working at one speed; or, they are using the obsolete step cones, taper cones, gears, expanding pulleys, variable speed engines or some other makeshift that gives them "about" the right speed.

Why not install—

"The Reeves" **Variable Speed Transmission**

to operate your dryers, tentering machines, printing machines, washers, soapers, mercerizers, singers, etc., and always get "EXACTLY" the right speed for any work.



"The Reeves" assures the greatest production that the machine and material will stand.

Submit your problems to us.

Our Engineering staff is especially trained in this line and at your service.

Reeves Pulley Co., Columbus, Ind.

Chicago Branch, Corner Clinton and Monroe Sts.

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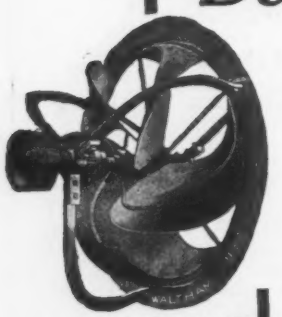
Davidson Fans



DAVIDSON FAN

Probably the most widely used fan in the world.

ARE THE MOST EFFICIENT

Equipped with ball thrust and ring oiling bearings which have removable babbitt sleeves that can be renewed in 5 minutes without taking the fan or bearing to your machine shop.

Consult us about the conditions in your Dye House or other department.

Write for Catalogue. Engineering Advice Free

MASSACHUSETTS FAN CO.
400 HOWARD ST. WATERTOWN, MASS.

RODNEY HUNT
MACHINE COMPANY

LATEST DESIGN OF
PUSHER FULLING MILL

OAK AND HARDPINE FRAME AND PLANKING : SPECIAL DOUBLE ACTING SHOCK ABSORBER : ECCENTRIC DRIVE.

HUNT
SUPERIOR QUALITY

MAIN OFFICE AND WORKS . ORANGE, MASS.
BOSTON OFFICE . 70 KILBY STREET

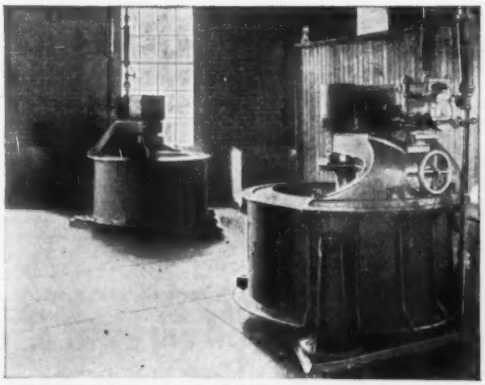
Eureka Fire Hose

Cotton Mills, Woolen Mills, Knitting Mills and Factories need positive protection instantly available. Eureka Hose gives protection.

"Eureka" has the lasting quality and the capacity to resist wear and tear.

Fire Hose for every possible duty.

Eureka Fire Hose Mfg. Co.
NEW YORK



Reduce Your Costs by Using Extractors

Over 1500 firms in widely different fields use some type of Schaum & Uhlinger Centrifugal Extractor for the economical extraction of liquid from dye stuffs, for the drying of textiles, by-products, chemicals, etc. and for the separation of solids from liquids.

The tremendous success these machines have achieved is the greatest assurance you can have of the satisfaction and profitable service they would give *you* in *your* plant.

The picture above shows two 48" steam-driven

Schaum & Uhlinger Centrifugal Extractors

in the plant of the Nicetown Dye Works, Philadelphia. This concern uses a number of S. & U. machines for extracting dye liquid from piece goods.

Whether steam, electric or belt driven all S. & U. machines are easily and quickly started, attain full speed rapidly, and are promptly brought to a full stop by a powerful brake. They're self-balancing require a minimum of foundation—are absolutely safe.

Our new book "Centrifugal Extraction" tells all about the efficiency, economy and dependability of these machines. It gives also a large list of users among whom you'll doubtless find several in your vicinity. Write for this book now. It's a guide to greater production and less cost in this branch of textile work.

Schaum & Uhlinger, Inc.
204 Glenwood Avenue, - - Philadelphia

Type "E" Motor Driven

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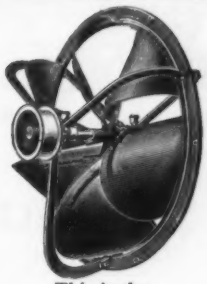

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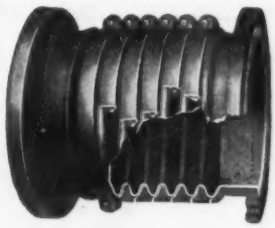

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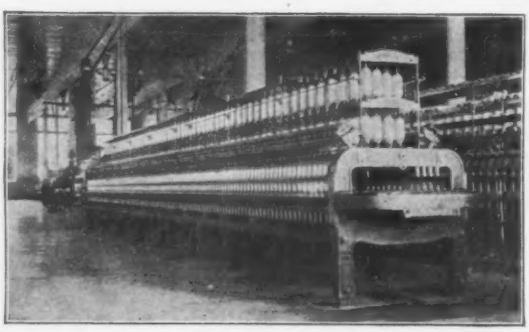

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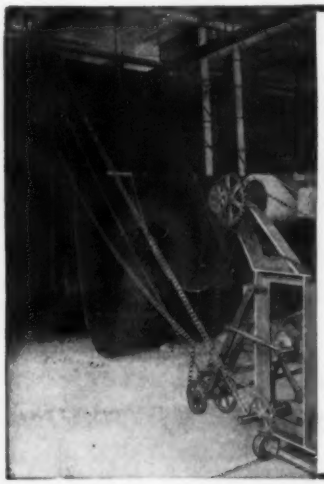

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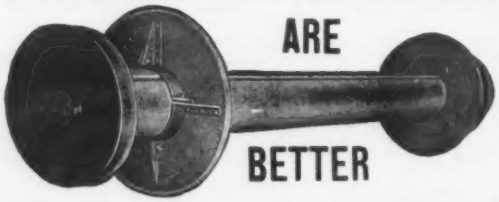

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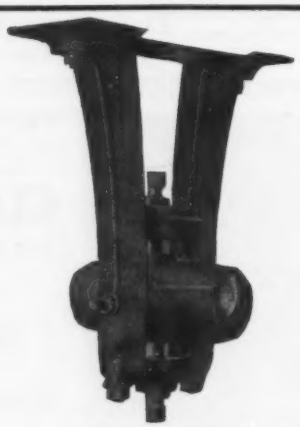

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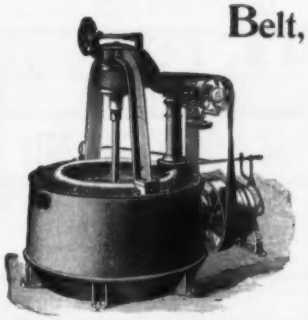

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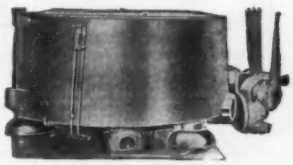

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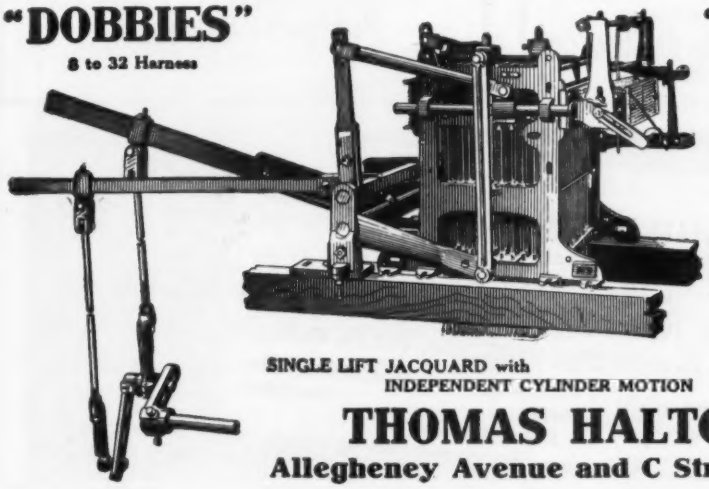

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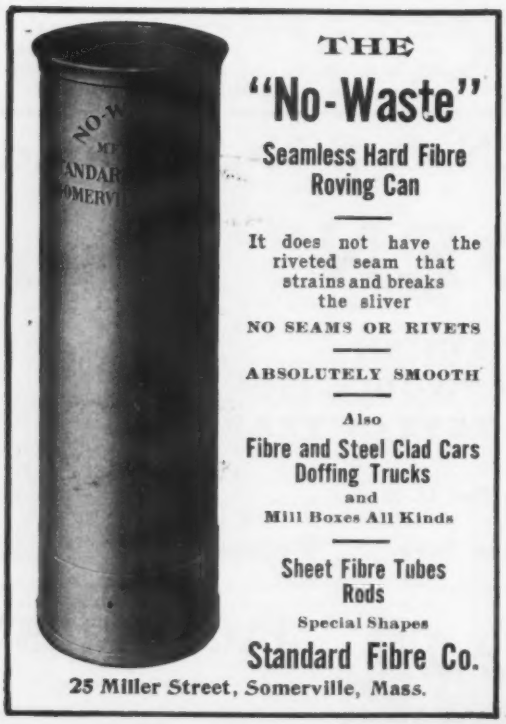

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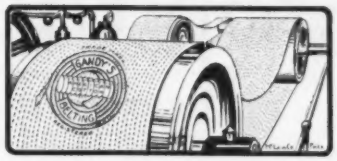
Gandy Belting



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In the 35 years and more during which the Gandy Belt has been successfully manufactured, its users have surely had abundant opportunity to test its durability in actual service.

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If your belt is exposed to dust, or dirt, steam, oil or acid fumes the belt that will give you the service is **The Gandy.** Yet Gandy Belts cost 1-3 as much as leather, and 25% less than rubber. Get full information about Gandy service and economy for your requirements by sending us a postal today. No obligation of course.

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PRESERVES BELTS - PREVENTS SLIPPING

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cut down your power cost,
effect a saving on belting,
prevent slipping,
allow the use of loose belts and so reduce friction.

If you want the half-pound bar just tell us to whom we should send it and you'll get it without cost or obligation

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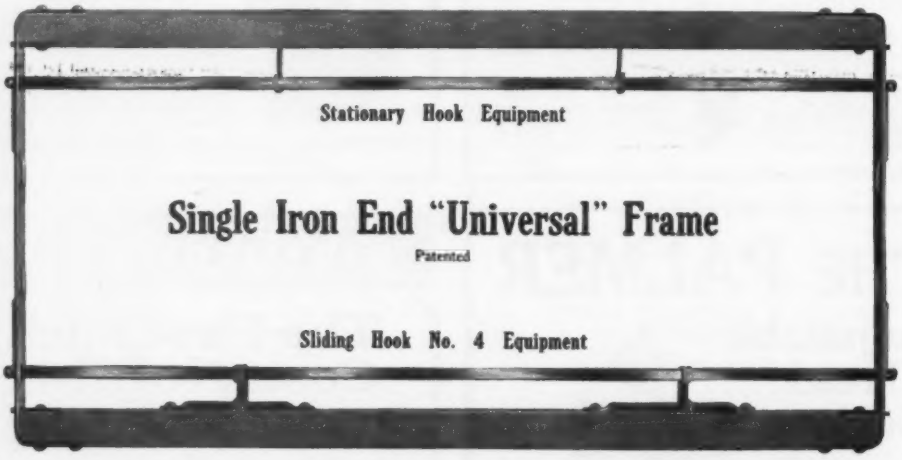
IT takes only a second or so to pull out a twisted heddle—a minute or so to readjust your frame—a minute of attention on the part of operators. Just minutes, that's all—but in a year those minutes will amount to days and weeks.

Nor is this waste the only terrific expense. Figure too that the old wire harness—the frames that looked cheaper on the invoice—are constantly wearing out and that they invariably go to the scrap heap long before they have begun to pay for themselves.

It was these little, sneaky wastes of weaving that have induced hundreds upon hundreds of textile mills in every country in the civilized world to equip with Steel Heddles and Universal Frames.

Take the Universal Iron end Frame. Here is a frame you can use to the extreme width of the loom. The wood used is fully seasoned—free from knots—clean fibred and pre-shrunk. It is so built that it can be dismantled in a few seconds. Has no protruding parts to catch or hold or rub other frames in weaving.



The Universal Frame is built for service—for efficiency—for durability. There isn't a cheap splinter in it. It was built for the man who wants real economy—not the fake economy of an original low price.

You can have Universal Frames built to suit your own ideas—to fit the peculiar conditions of your mill and your product.

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A Complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

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Indanthrenes Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To Dr. Rene Bohn, Director of the Badische Anilin-& Soda-Fabrik, Ludwigshafen a/Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Indanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fibre lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

BADISCHE COMPANY

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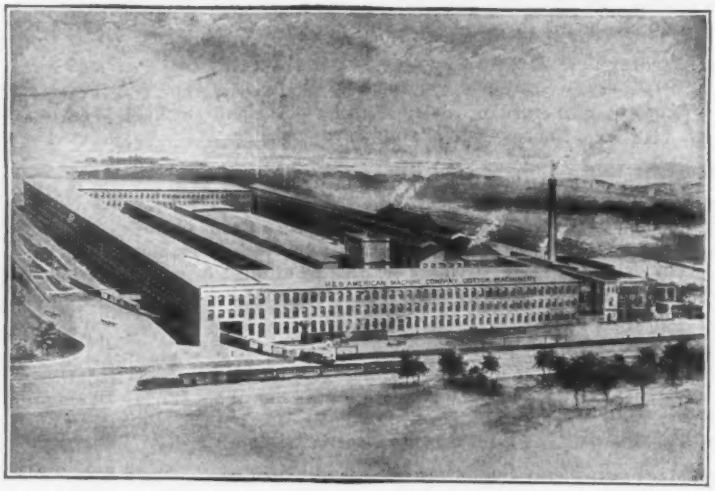
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

SEPTEMBER, 1914

Monthly Comment.

Cotton and the War

It is the fate of cotton growers in the present war, as in our civil war, to bear the main part of the war burden resting on the American textile industries. From 1861 to 1865 the Southern States were deprived of their market for cotton by the blockade of their coasts. Now these markets have been taken away from them almost as effectually by the stopping of foreign mills, the demoralization of foreign trade and the interruption of financial exchange with foreign countries. A study of the Internation Cotton Federation's statistics of the world's consumption of raw cotton for the year ending August 31, 1913, gives a good idea of the extent to which the European war has destroyed the market for cotton. These statistics cover returns from over 90 per cent. of the world's spindles and in compiling the following tables we have estimated the consumption pro rata for the missing 10 per cent. so as to make the estimate cover the world's cotton trade:

Consumption of Cotton (in Bales) for Year Ending Aug. 31, 1913

	American	Total
Great Britain	3,666,417	4,274,320
Germany	1,354,769	1,701,000
France	805,504	1,000,918
Austria	626,704	837,065
Russia	485,688	2,508,598
Belgium	171,010	257,378
Japan	424,842	1,586,899
Belligerents	7,534,934	12,166,178
Italy	570,484	789,330
Spain	285,013	353,133
Holland	67,713	84,809
Sweden	109,036	112,010
Switzerland	64,743	98,498
Portugal	62,933	77,866
Denmark	24,549	25,512
Norway	9,416	11,499
Europe, not at war	1,193,887	1,552,657
India	93,000	2,178,025
Canada	113,046	114,758
Other foreign	15,890	1,123,594
	221,936	3,416,377
United States	5,553,000	5,786,000
World total	14,503,757	22,921,212

It is impossible to estimate closely the extent to which European mills are continuing the consumption of cotton. Access to Germany, Austria, Belgium and Russia is almost completely lost. The mills of France are in the fighting zone and in all probability are shut down. Half the cotton spinning machinery in Lancashire is idle, and owing to the mobilization, cotton mill operations in the other European countries are probably curtailed to as great an extent. That is the manufacturing situation in countries that consumed 8,728,821 bales of American cotton last year, which is practically all the American cotton used in foreign mills. The mills of the United States offer the only free market for American cotton, of which they consumed 5,553,000 bales for the year ending Aug. 31, 1913. These figures show plainly the extent of the embargo on

the foreign trade in raw cotton. Moreover the market situation is made more serious by the fact that it arises when a new crop is about to come on the market.

In such an emergency it is not surprising that there should have been a feeling of panic in the cotton trade, nor that many ill-considered schemes for financial relief should have been proposed. In order to obtain the views of well-informed men Secretary McAdoo extended invitations to a conference at Washington on August 25. At this conference Frank B. Hayne, director of New York and New Orleans trust companies and a member of the Cotton Exchange, stated that while he did not favor the valorization of cotton, he believed that it was necessary at such a time as this that some valuation should be put on cotton as a collateral and that this could be done only by the Federal Government.

A. W. McLean, of North Carolina, advised passing the warehouse laws by the States so as to give integrity to warehouse receipts which could then be presented to the Treasury Department for security under the new banking laws.

Wesley D. Rane, of Tennessee, advised that the State banks be nationalized so as to be in a position to lend money to cotton farmers.

Congressman Sisson, of Mississippi, made a strong appeal to the Government to give State banks the right to issue currency during the present emergency. Secretary McAdoo took issue with Congressman Sisson and advised that the discussion be kept within the bounds of reason as the national banks could issue sufficient currency to finance the crops. Secretary McAdoo said that it was impossible to go back to the days of wild cat circulation such as was proposed by Mr. Sisson.

P. C. Chapman, of Mississippi, asked to be informed how to obtain currency on cotton security. "I can tell you that," replied Secretary McAdoo, "but I cannot tell you how to break every law of nature." The Secretary then stated emphatically that the government could not enter into any valorization scheme, but that he was willing to accept proper warehouse receipts as approved securities under the banking law.

Senator Williams, of Mississippi, stated that while the government would do all that was possible to relieve the situation, that would not be sufficient. It was necessary, in Senator Williams' opinion, that the manufacturers should get together and run their mills night and day to supply the South American and Asiatic trade that will be taken away from the European nations because of the war. Once this trade is obtained, the Senator said, it will be retained if peace is declared. He asserted that the country would not be compelled to carry 4,000,000 bales of cotton until next year and that the manufacturers should not permit it to be carried over. This cotton should be sold for nine or ten cents rather than to be carried over. Secretary Houston urged caution in the matter and stated that ours is a government of law which knows no favorites and that it could not do more for cotton than for any other product in the country.

Senator Hoke Smith, of Georgia, made a plea that State banks be permitted to issue currency for a period of one year, or during the present emergency and was told by Secretary McAdoo that the national banks had adequate currency to more than supply the needs of the country. The conference then adjourned.

After conferring with the Federal Reserve Board and the Treasury officials Secretary McAdoo issued the following circular explaining the course planned by the Department:

Among the eligible securities to be used as a basis for the issue of currency I have decided to accept from national banks, through their respective national currency associations, notes, secured by warehouse receipts, for cotton or tobacco, and having not more than four months to run, at 75 per cent. of their face value. The banks and the assets of all banks belonging to the currency associations will be jointly and severally liable to the United States for the redemption of such additional circulation, and a lien will extend to and cover the assets of all banks belonging to the association and to the securities deposited by the banks with the association, pursuant to the provisions of law, but each bank composing such association will be liable only in the proportion that its capital and surplus bear to the aggregate capital and surplus of all such banks.

This plan ought to enable the farmers to pick and market their cotton crop if the bankers, mer-

chants and cotton manufacturers will cooperate with each other and with the farmers, and will avail of the relief offered by the Treasury within reasonable limits. Such cooperation is earnestly urged upon all these interests. The farmer cannot expect as high a price for cotton this year because of the European war, yet he should not be forced to sacrifice his crop. The banker and the merchant should not exact excessive rates of interest, and the manufacturers should replenish their stocks as much as possible and pay reasonable prices for the product. If this is done—and it can be done if every one displays a helpful spirit—a normal condition can be restored and there ought to be no serious difficulty in taking care of the cotton problem.

This is a time when the entire country expects that purely selfish interests shall be subordinated to the common good; that undue advantage shall not be taken of the necessities of each other. I am happy to say that this spirit seemed to animate those who attended the so-called cotton conference held at my request in Washington on Aug. 24 and 25.

Since the law leaves it entirely in the discretion of the Secretary of the Treasury to issue or not to issue the currency to which I have referred, I shall not hesitate to refuse it if I am convinced that it will be used merely for speculative purposes instead of for the operation of harvesting and carrying the crop until a reasonable market can be found, and for the needs of legitimate business.

It is not my purpose to prescribe the character of warehouses in which cotton and tobacco may be stored. The banks will be relied upon to see that the warehouse receipts issued by responsible warehousemen or warehouse companies alone are accepted, and that the cotton and tobacco stored in such warehouses is covered by adequate fire insurance and is protected against injury by the elements.

In order to obtain such currency the following things should be observed by banks applying therefor:

1. Not less than ten national banks in any given territory, each having an unimpaired capital and surplus of not less than 20 per cent., desiring such currency, shall form a National Currency Association, with an aggregate capital and surplus of not less than $5,000,000 as required by the act. Full particulars and blank forms for this purpose may be had upon application to the Controller of the Currency, Washington, D. C.

2. Any National Currency Association formed in accordance with law, will receive the approval of the Secretary of the Treasury. Already thirty-seven such associations have been organized in the various States.

3. Under the law, the Secretary of the Treasury may accept as security the currency:

A—Bonds of any State or of any city, town, county, or other legally constituted municipality or district in the United States which has been in existence for a period of ten years and which, for a period of ten years previous to such deposit as security, has not defaulted in the payment of any part of either principal or interest of any funded debt authorized to be contracted by it, and whose net funded indebtedness does not exceed 10 per cent. of the valuation of its taxable property, to be ascertained by the last preceding valuation of property for the assessment of taxes.

B—Any securities, including commercial paper, approved by the Secretary of the Treasury, held by a national bank and made available through a national currency association under the direction and control of the Secretary of the Treasury at not exceeding 75 per cent. of the cash value of such securities or commercial paper.

C—No national bank shall be permitted to issue circulating notes based on commercial paper alone in excess of 30 per cent. of its unimpaired capital and surplus.

4. The total amount of currency issuable to any bank, including its circulating notes issued against United States bonds, shall not be more than 125 per cent. of its unimpaired capital and surplus.

5. Each bank or currency association receiving currency must maintain in the Treasury at Washington a redemption fund in gold of at least 5 per cent. The Secretary of the Treasury may, at any time, require such additional deposits in gold as, in his judgment, may be sufficient for the redemption of such notes.

I am convinced that there is adequate power under existing law to issue through the national banks all the currency to meet any reasonable demand that may develop in any part of the country, and that it is not necessary to extend the note issuing privilege to State banks.

The Secretary of the Treasury already has the power to issue $1,000,000,000 of additional national bank currency, if it should be required, but I cannot imagine a condition when any such need will arise.

The Call to Arms

The readers of this magazine will be interested in this message, dated August 8, 1914, received from our French correspondent, Robert Dantzer, at Quevauvillers, France:

"Affectueux souvenir d'un sergent du 128th Regiment d'Infanterie."

Mr. Dantzer is well known to the readers of the Textile World Record because of the articles he has contributed to our columns during the past ten years under his own name and the nom-de-plume, "Gaul". His articles, dealing with a wide variety of subjects relating to the textile industry, have been marked by a most unusual grasp on both the practice and theory of textile manufacturing, the result of a combination of technical training and mill experience. In recent years he has filled the position of consulting textile engineer and professor of weaving at the Societe Industrielle d'Amiens, the Ecole Superieure de Commerce de Lille and the Ecole Nationale Professionnelle d'Armentieres. Along with millions of men in the fullness of their powers, he is called to the colors now to defend his country.

Dyestuffs, Patents and Textiles

All but a small fraction of the dyestuffs used in the American textile industry have been obtained from Germany. The sudden loss of this supply as a result of the European war forces American manufacturers to resort to one or both of the following alternatives if they are to keep their mills in operation.

(a) Substitute the natural dyestuffs which have become largely obsolete because of the superiority of the artificial dyes:

(b) Induce the buyers of textiles to use goods in the grey or white state.

In another part of this issue will be found several articles by experts on ways and means for meeting the difficulty by the first expedient. The extent to which the second can be employed must depend on the agreements between textile manufacturers and the buyers of goods. At the best these expedients can afford but partial relief. A permanent solution of the difficulty can come in only two ways: By the restoration and maintenance of peace throughout the world; by the creation of a domestic supply of artificial dyestuffs.

THE GERMAN WORKING CLAUSE

It would be futile in a matter of this kind to speculate on the duration of the war or on the maintenance of peace when once restored. The only complete remedy for this serious shortcoming of the American textile industry is to establish the manufacturing of artificial dyestuffs in America. The first requisite in such an undertaking is to remove the causes that now prevent the establishment of the dyestuff manufacture in this country. First among these causes is the relative adjustment of American and German patent laws. When the German Empire was formed by the union of various kingdoms it was Bismarck's plan to have no German patent laws whatever, but to place at the disposal of German manufacturers the past, present and future inventions of all countries, with the object of developing the latent resources of his country. He was dissuaded from carrying out this plan, but he embodied the principle of it in what is known as the "working clause" of the German patent law, which provides that a German patent can be summarily annulled if the invention is not worked in Germany within three years of the date of issue. This clause as originally enacted and retained in effect in later revisions of the German law is as follows:

> We, William by the Grace of God, German Emperor and King of Prussia, decree, in the name of the Empire, the following statute, the consent of the Federal Council and Parliament having been given:
>
> Section II. The Patent can be withdrawn by the Patent office after the expiration of three years from the day of publication of the allowance of the Patent:
>
> 1. If the owner of the Patent shall omit to work the invention to an adequate extent in this country (Germany) or, at all events, to do all that is necessary to secure such working.
>
> 2. If in the public interest the granting of permission to others to use the invention appears needful, but the owner of the Patent may refuse, notwithstanding, to grant this permission for adequate compensation with sufficient guarantee.

The United States patent law has had no working clause, but has granted an exclusive monopoly of the use of the patented invention regardless of whether it is worked in the United States or not. This was true of the English patent laws also up to 1907.

TRANSFERRING THE INDUSTRY TO GERMANY

The German people possess a peculiar aptitude for scientific research on which the success of such an industry as the manufacture of artificial dyestuff depends. This aptitude, highly developed by German technical schools, combined with a high degree of ability in organizing industries, and aided by the working clause in the German patent law, resulted in transferring to German soil the center of the artificial dyestuff industry, which was established in England in 1856 by Sir William Henry Perkin, the discoverer of the first artificial dye.

For forty-four years the United States has allowed its patent law to remain without a working clause, and thus has cooperated with Germany in carrying out the scheme of the Iron Chancellor, whose guiding maxim as stated by himself was:

> For me there has been but one compass, one pole star after which I have steered: Salus publica. Since I entered public life I have often, per-

haps, acted rashly and imprudently. But when I have had time for reflection I have always been guided by the question, What is most beneficial, most expedient and proper for my dynasty, so long as I was only in Prussia and nowadays for the German Nation. I have never in my life been doctrinaire. All systems by which parties are divided and bound together are of secondary moment. My first thought is of the nation, its position abroad, its independence, our organization in such a way that we may breathe freely in the world. In estimating future events we must keep an eye on the United States of America, for they may develop into a danger to Europe in economic affairs, possibly also in others at present wholly unexpected by most of us. In the future the one cannot be separated from the other. The war of the future is the economic war, the struggle for existence on a grand scale. May my successors always bear this in mind and take care when the struggle comes that we are prepared for it.

For forty-four years the working clause in the German patent law has worked as Bismarck intended it should—to develop German industry. During the same forty-four years the patent law of the United States with no working clause has served to throttle American industry and thus aid in the execution of Bismarck's scheme of German development.

WHAT WE HAVE AT STAKE

In 1909 our textile industries were of the following vast proportions:

Capital	$1,841,242,131
Value of products	1,684,636,499
Persons engaged	915,858

These figures take no account of the increase since 1909, nor of the capital and people engaged in converting textiles into garments and other products, nor of the many industries allied to and depending on textile manufacturing. The public and their representatives at Washington, oblivious of or indifferent to the fact that was so plain to Bismarck, have allowed our own laws to make this vast industrial fabric dependent upon a German monopoly. It has required a war that staggers humanity to awaken the American people to this half century of folly. That war has stopped the supply of dyestuff from Germany and in an instant, not only our vast textile industries employing more than a million of persons, but many other trades and occupations depending on dyestuffs are facing complete paralysis or a serious crippling of their productive power.

NO ROYAL ROAD TO INDEPENDENCE

It would be folly as great as that already pointed out to expect that at this late date the enactment of a working clause in our patent law is the open sesame by which our industries can obtain a prompt supply of dyestuffs. At best it will be a slow, laborious undertaking to establish the artificial dyestuff industry in the United States. It will be necessary to begin the work with the clearheadedness and patriotism of Bismarck and continue it with the patience, industry and intelligence exhibited by the Germans since 1870. Under the most favorable conditions it will take years to provide a domestic supply of dyestuffs to meet the home requirements. In the meantime the country must meet as best it can the situation that has resulted from its own shortsightedness and neglect.

THE REMEDY

The German artificial dyestuff industry is not wholly self-contained. It depends on other countries for its supply of raw material. Germany, however, has made this industry as nearly self-contained as possible and that is what the United States should do. To that end Congress should enact a law making the adequate working of an invention in the United States a condition on which the patent protection shall be continued. In addition to that a tariff should be imposed on artificial dyestuffs to protect the new industry against both legitimate and unfair foreign competition. To effect this object the rates to start with should be specific. A tariff without a working clause would serve only to increase the price of dyestuff to the American consumer. A working clause without a tariff would mean but partial relief. The working clause combined with the tariff would enable the United States to liberate itself from its present dependence on foreign countries and provide a domestic supply at a fair cost.

WARNING OF THE DANGER

These words are prompted by no belated awakening to the danger on our part. Eight years ago Sir William Henry Perkin, who discovered the first coal tar color in 1856,

visited Boston. At the Boston banquet in his honor President Pritchett of the Massachusetts Institute of Technology volunteered the sapient observation that Germany had reaped the industrial advantage of the Englishman's achievement "because Germany realized the importance of this development and had schools and men to take advantage of the discovery". In our comment on this explanation in the November, 1906, issue, there is found this statement of the facts that the European war is now bringing home to the American people:

The reason why Germany reaped this great industrial advantage resulting from the discovery of mauve was not, as was stated by President Pritchett of the Massachusetts Institute of Technology at the Boston banquet to Dr. Perkin, "because Germany realized the importance of this development and had schools and men to take advantage of the discovery." Dr. Perkin realized this importance as did Englishmen and Americans generally. Moreover both England and America have the "schools and the men." President Pritchett should be the last to deny either proposition. We have had and still have all that President Pritchett thinks is essential to success in the manufacture of coal tar colors, but they have not prevented the industry that Dr. Perkin founded in England from leaving England and flourishing in Germany. Neither have they made it possible for the coal tar color industry to reach more than a trifling development in America. What, then, is the reason for this failure in English-speaking countries and the phenomenal success in Germany? It is to be found in the protection given to the German industry by the patent laws not only of Germany, but also of Great Britain and the United States. The following comparison of the patent laws of these countries, taken from the Textile World of February, 1902, discloses at a glance the reason that President Pritchett has so strangely overlooked:

GERMANY

Requirements: Annual (yearly increasing) tax. Invention must be worked within three years from the date of the patent.

GREAT BRITAIN

Requirements: Annual (yearly increasing) tax to maintain validity. No working of inventions required.

UNITED STATES

Conditions of Grant: Unlike most other countries the United States grant extends exclusive privileges to the inventor without restrictions of any nature. No annual or other taxes are required, and the invention is not required to be worked.

It is this protection afforded the inhabitants of Germany by German, English and American patent laws that in fifty years has forced Great Britain and America to pay tribute to Germany for the products of the industry founded by Sir William Henry Perkin.

In 1907 Great Britain as the result of a long-continued agitation, adopted a working clause in her patent law. For years this magazine urged that the United States do likewise, but our effort was all in vain. Our voice in this country was as of one crying in the wilderness, and so here we are in 1914. That the efficacy of this remedy is clearly realized abroad, is shown by the action of Germany in 1909. At that time a working clause was threatened in this country, and to head off such action Germany negotiated a treaty with the United States by which the German working clause was made inoperative on American inventions. This left the American parent protection unchanged, which was the result desired.

THE SITUATION IN CONGRESS

It may be that the stern necessity of this terrible year will accomplish what the dictates of reason and common sense have thus far failed to do—move Congress to place in the patent law of this country what has been in operation in Germany for forty-four years—not a pretense, but a working clause with teeth in it, by which the owner of a patent will be compelled to work it to an adequate extent in the United States or relinquish his patent right to the public so that others may work it if they so desire. Until recently the attempt to exact a working clause has been held up at Washington by a majority of the House Committee on Patents, of which the members are:

W. A. Oldfield ..... 1st Arkansas
M. A. Morrison ..... 9th Indiana
Frank Clark ..... 2nd Florida
J. W. Alexander ..... 3rd Missouri
Oscar Gallaway ..... 12th Texas
H. A. Metz ..... 10th New York
R. P. Hill ..... 25th Illinois
W. R. Oglesby ..... 24th New York
William Kennedy ..... 5th Connecticut
H. H. Moss, Jr. ..... 4th West Virginia
A. S. Kreider ..... 18th Pennsylvania
F. O. Lindquist ..... 11th Michigan
C. D. Paige ..... 3rd Massachusetts
J. I. Nolan ..... 5th California

We learn from unquestionable authority that Chairman Oldfield is heartily in favor of legislation that will bring about the compulsory working of all United States patents to an adequate extent. The difficulty has been, however, that the Chairman has heretofore been unable to get a majority of the Committee on Patents to go with him in reporting a bill carrying such a provision. He needs the support of public sentiment to bring the majority of his Committee to their senses. The present countrywide demonstration of the necessity of a working clause, not only for patent dyestuffs, but for other patents as well, should bring about that result.

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Cancellation of Orders

The National Wholesale Dry Goods Association has recently sent to its members the following letter calling attention to an aggravating example of the cancellation of orders:

Our attention has been called to the question of cancellation of orders, one of our members just citing a particularly aggravating case as follows:

> "A concern located in one of the large cities of the central west, ordered in February from us a quantity of coats, giving styles, assortment of sizes, etc., the goods to be shipped on August 1st.
>
> "As is our custom, we made up these goods during the spring months, packed the goods and had them ready for shipment to this party, who now cancels the order without explanation.
>
> "The cancellation was made some two or three weeks ago and we have written them upon the subject, protesting against the unfairness of such a cancelation without explanation, but they simply state that they will absolutely refuse the goods if shipped them."

Doubtless similar cases have arisen in your business and we are accordingly asking for the benefit of your expression and particularly of the means which you have adopted to lessen or prevent unwarranted cancellation of orders.

Our member, of course, understands that he may ship the goods according to the signed order and take legal measures to force the carrying out of the contract on the part of the customer, but in the knowledge that the concellation of orders is an abuse from which the dry goods trade has suffered for many years, it is his belief that an interchange of expression and method employed to correct this evil may be very helpful.

The abuse is of long standing and still survives, although the efforts of individual firms and associations during recent years have undoubtedly resulted in a marked improvement in conditions. The circular letter quoted above will have a good effect by serving to place a ban on firms that disregard the obligations resting on them to accept the delivery of goods they have ordered.

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Cotton Goods Exports from Japan

The Japanese export trade in cotton goods shows a rapid increase during the past two years. The figures for the first four months of 1912, 1913 and 1914 as reported in the U. S. Consular Reports being as follows:

	1912	1913	1914
Yarn	$6,476,000	$12,213,000	$15,929,000
Cloth	3,639,000	5,303,000	6,150,000
Towels	318,000	449,000	546,000
Underwear	803,000	969,000	1,143,000
	$11,236,000	$18,934,000	$23,768,000

The Japanese products consist of medium and low grade goods, the yarn finding a market principally in China where a large part of it is woven into cloth on hand looms.

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Organized Short Time

In another part of this issue our English correspondent gives an account of the present status of the movement started ten years ago to organize the cotton spinners of the world into a Federation whose main object was to regulate the price of cotton and cotton goods by restricting the consumption of cotton in accordance with a prearranged plan. Up to the present time the effort has not been attended with any real success. The European Federation may have contributed at times to a more rapid crystallization of sentiment in favor of short time when the cotton trade was suffering from depression, but the history of the first ten years of the Federation's existence shows clearly that so far as running on short time is concerned, when the cotton spinners will they will, and when they won't they won't. The existing war conditions are a case in point. The cotton mills of Europe are stopped or on short time because of the partial loss of their markets resulting from the war. This is an unprecedented situation, but it illustrates the policy of cotton spinners under ordinary

conditions. They will run their mills when they can, and shut them down when bad trade forces them to do so. Organizations, such as the European Cotton Federation, may contribute toward unity of action on these lines, and that is all.

Our correspondent calls attention to certain features of the short time policy, such as compulsory adherence to the rules laid down by a majority of the trade. That is the view of the extremists among the short timers, and is not likely to be adopted even in Europe. It makes even more grotesque, however, the invitation recently extended to the American trade to join the European short time federation.

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An American Flax Industry

Discussing the possibility of developing the production of American flax, Charles Richards Dodge had this to say in our July issue:

Were foreign flax culture to suddenly fall, and the American manufacturers who buy flax were thrown on the resources of their own country, there would be a flourishing national flax-cultural industry in short order.

Only two weeks after the issue containing Mr. Dodge's article appeared the European war broke out and at one stroke reduced the supply of foreign flax almost to the vanishing point. Whether the prediction of a sudden development of an American supply of flax is to be fulfilled depends upon the duration of the war as well as on the latent forces of domestic production which are to be put into motion. If happily the war is brought to a speedy close the foreign production of flax will be resumed before an American supply can be started. There is, however, the appalling possibility of a prolongation of hostilities and in that event the United States will be forced to produce its own raw material or go without linen goods. The extent of the present embargo on the foreign supply of flax and other textile materials is pointed out in the following letter from Mr. Dodge:

Regarding the European flax and hemp situation, it is hard to say just what the outcome will be. With the mobilization of Russia's vast army before either crop was ready to harvest even. I cannot think that much was saved, and there was a shortage anyway. Ireland does not produce as much flax as is needed for home consumption, drawing heavily every year from Belgium, which means also Holland flax, as the most of the Dutch flax is sent to Belgium to be retted. But they are hardly making a flax crop in Northern France this year, and the flax fields of the famous Courtrai region of Belgium are being trampled by troops. There is no French flax for exportation, and what there is goes to Belgium to be retted. Sweden produces twelve to fifteen hundred tons only. Servia has as much more, but Servia is in this row. Austria and Hungary produce twenty-five to thirty thousand tons, but it is hardly probable that the 1914 crop can be counted on. And there you are! The hemp countries are practically the flax countries.

We have had (1913) a bumper crop of cotton, but as the war must affect German and other European cotton manufacturing industries, it would seem that we shall not be able to get rid of our supply as in years of peace, and will have a lot left on hand.

The 1914 silk crop was made so early in the season that the war could not affect it. It is a kind of household industry anyway, the women and children feeding the worms, and selling the cocoons. Even the filatures could be run by women and girls. Italy's silk, and hemp as well, will not be affected by the war, and unless the country is invaded there will be no trouble in getting our usual supply of Italian hemp. It is the Russian hemp, however, that we largely depend on.

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German Industry

The interruption of communication with Germany leaves the world in ignorance of the condition of affairs in that country since the war began. The call of all available men to the colors and the loss of transportation and financial facilities makes it certain that the vast system of German industry and trade is now in a state of demoralization. This result was clearly forseen, as is shown by the following letter written on July 31, the day Germany declared war on Russia, by one of the leading cotton manufacturers in Germany and addressed to the "Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie":

In reply to yours of the 30th inst., I regret very much not to be able to comply with your desire for a report on the situation in the cotton trade. In the first place I am fully occupied with affairs in connection with political difficulties, and in the second place, it is impossible to form any judgment as to the course of the market in case Germany goes to war. It is impossible to predict how the industry will be affected by the new condition. It will be especially difficult to obtain a supply of raw material and during the first weeks and months the market for goods will be in a state of stagnation. There is certain to be a great loss of employment and the impossibility of shipping goods is also to be taken into account. The violent situation will also be aggravated by the stu-

pidity of the public as well as the wide fluctuations in the cotton market. I look with misgiving to the future, particularly because of the poverty among the working people in case we really become involved in war, which, unfortunately is now no longer to be doubted.

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

The meeting of this association will be held at Hotel Aspinwall, Lenox, Mass., on Tuesday and Wednesday, September 29 and 30.

The sessions will be held in the ballroom of the hotel, beginning at 8.15 p. m., on Tuesday, September 29, on which occasion President Duncan will make an address, to be followed by Charles T. Plunkett, who will relate an account of his recent visit to the ports of South America, with special reference to their opportunities for American commerce in textile goods. The remainder of the evening will be devoted to a social reunion.

On Wednesday, the morning session will be held at 9.30 a. m., devoted to papers. These papers will be read in abstract, except by vote of the meeting, in order to give opportunity for discussion.

Wednesday afternoon will be left free for recreation and on Wednesday evening there will be a dinner at 7 o'clock, at which Arthur R. Marsh, ex-president of the New York Cotton Exchange, will speak on the Lever cotton law, and others of prominence will speak upon public questions pertinent to the cotton industry as will be announced prior to the meeting.

The following papers are expected:

Beam Dyeing.
Commerce in Cotton Goods with South America.
Cost of the Permanent Fireproofing of Cotton Goods.
Effect of Structure on the Strength and Wearing Qualities of Fabrics.
Health of the Employe.
Lever Cotton Law.
Pink Boll Worm in Egyptian Cotton.
Production and preparation of Raw Cotton for the Spinner.
Time Temperature Distributions in a Bale of Cotton.
Trademarks in Cotton Textiles.
Visits to Cotton Mills in the Far East.
Weft Yarn Inspection.
World's Demand for Cotton and India's Part in Meeting It.

TRANSPORTATION ARRANGEMENTS

A special train of Pullman cars will leave the South Station, Boston, at 1.15 p. m., Tuesday, Sept. 29, stopping en route for the benefit of members joining the party, and will return on Thursday morning.

The transportation arrangements are in the hands of Raymond & Whitcomb Co., who will furnish tickets and make hotel arrangements also from any point.

CHINESE GRASSCLOTH

A Report by Consul Lester Maynard, Amoy, China

No grasscloth is manufactured in Amoy and in fact in no part of this province except close to the border of the province of Kiangsi. The Kiangsi grasscloth is the cloth exported from Amoy to the Philippine Islands, which in 1912 was valued at $6,835 and which increased in 1913 to $14,624. The entire exports of grasscloth from Amoy to foreign countries for the two years amounted to $17,949, which in 1913 increased to $27,742. About half the increase of the entire exports is accounted for by the increased shipments to the Philippine Islands. The entire shipments of grasscloth from Amoy are a very small factor in the export trade, but as regards shipments to the Philippine Islands it is by far the most important article exported. The fluctuation in the export of grasscloth is not unusual, being entirely governed by supply and demand, both of which are uncertain and there is therefore no special significance in decreases or increases.

The fiber from which the cloth is made averages about six feet in length and the method of obtaining a continuous thread for use in the warp consists in scraping the end of the fiber with the finger nail so as to make that part thinner than the main part of the strand which has been woven; the same is done to the end of the loose strand which has been added. The thinned ends are then moistened with rice-starch and rolled between the fingers of the weaver. The weaving and joining of strands is all done by the women, who receive about five cents per day for their labor. After the fiber has been

woven into the piece the starch can be washed out without injury to the cloth and when ironed under pressure the places where the fiber has been joined are not noticeable.

The grasscloth of this part of China is coarse in comparison with the cloth manufactured in the Swatow and Canton Consular districts. In the last two named places, drawn work made from grasscloth is an important industry, but nothing of this kind exists in this district.

THE WOOL GOODS MARKET

New York, Sept. 1, 1914.

The month of August has been an eventful one in the woolen goods district on account of the war in Europe. Our dependence upon the various powers now at war for supplies of wool, dyestuffs and other articles, is such that the interruption of imports will undoubtedly prove very detrimental to the production of woolens and worsteds. The difficulty to be overcome will not only be on the prices of these commodities, but in the possibility that they may not be obtained at any prices. It is plainly evident that manufacturers, not being provided with the requisite stocks of the articles in question, will find it a difficult matter to make prices for their merchandise.

It is reported that some of the largest mills are fairly well stocked up with the articles that are imported, while many of the smaller manufacturers that have been in the habit of buying sparingly as required by their actual sales, are left with a very small stock of the supplies on hand.

The uncertainty of importation of woolens has caused the withdrawal and cancellation of fabrics made on the continent. British manufacturers have cabled their selling agents that they are running their plants and can fill all orders. Our buyers are skeptical, as in times of war many complications are liable to arise that would prevent goods being made and delivered according to contract. The probabilities are that buyers will pass most foreign made goods and cancel a large percentage of the orders heretofore placed. The British manufacturers in their eagerness for American patronage overlook the fact that their production may be demanded by the government for army purposes. Such action would cause very great inconvenience and loss for our buyers that may have placed their orders with such mills.

The question of prices for all kinds of woolen and worsted fabrics has become an exceedingly serious one. Without adequate supplies of wool and dyestuffs or prices at which they may be obtained, it is impossible to make prices intelligently, consequently some fabrics are being held "at value" for the present. About all prices have been advanced since the spinning, some of them two or three times and more advances are sure to follow.

Considerable business has been booked in the aggregate. Many mills are well supplied with orders and many more have a moderate business booked or as much as they feel justified in accepting until the questions of prices and supplies of wool and dyestuffs are satisfactorily settled.

Many wholesale clothiers do not seem to take the unprecedented situation as seriously as the actual conditions demand. They have fought vigorously against the slightest advance in prices whether made under imperative conditions or not. It is plainly evident that any advance made is fully justified and that even at the higher prices quoted it may be impossible to produce the goods.

Many buyers are placing orders cautiously on account of the uncertain future, a number have expressed their belief that the reduced purchasing power of the masses, many of whom have been thrown out of employment, will curtail the clothing business to a considerable extent.

Orders given early in the season for foreign goods have generally been canceled and in a number of cases the buyers have made efforts to have the goods duplicated by domestic mills.

The out of town clothiers have been here in full force and most of them have finished their inspection of samples and gone home. The large clothing firms have in many cases purchased their usual quantities on many fabrics while the smaller buyers have bought sparingly and many have gone home with-

out placing any orders of consequence. They have taken reference samples of their selections with the intention of making their final selections later. It is understood that they have been given a certain length of time in which to place their orders at present prices. They give as a reason for their conservatism the uncertain situation regarding the future business, making it impossible for them to decide intelligently as to their requirements.

Tailors to the trade have done but little in placing their orders. Thousands of reference samples of their selections are being sent to them from which they will make up their orders later.

The serge business on the whole has been light in comparison to the usual large business having been done them. Some of the best known makes are considerably behind in their sales. This state of affairs is attributed in a great measure to the enormous sales made on tropical cloths which have become exceedingly popular and have largely supplanted other fabric. An exception on serges is a new line made in a well known mill and placed on the market at low prices. They met with extensive sales, many of them at advanced prices.

Some lines of fancy worsteds have met with considerable success at advanced prices from the opening prices. Many other makes report a large number of small initial orders. The greater part of this business still remains to be done.

The fine goods mills making goods for the finest jobbing and clothing trades are likely to sell up to their capacity, as such fabrics have been more extensively imported than have any other fabrics. That business is sure to be practically all cut off, leaving the domestic mills with little foreign competition. It is probable that such mills have enough Australian wool and German dyestuffs to carry them through a season. If not they may have some trouble in obtaining them.

The best known makes of vigoureux mixtures have met with unusual success and have secured orders well up to their full productions. The fabric is gaining in favor.

Coverts, which have been so long neglected, have experienced an increased demand, indicating a return to favor of this desirable fabric.

All wool carded suitings have not sold so well. The new tropical fabrics made of all worsted or of mohair with cotton warps have displaced them to some extent.

The general advances of prices on men's wear fabrics have checked cancellations and some canceled orders have been reinstated at the earnest solicitations of the buyers. This is quite an unusual situation in men's wear piece goods.

There are excellent prospects for piece goods held in stock by selling agents as such stocks are comparatively light and the goods cannot be duplicated except at considerably higher prices than they were made to sell for. There is an increased inquiry for these goods which indicates a good demand coming for them.

Dress goods and spring coatings have not been shown to any extent, the opening having been delayed some two weeks later than a year ago.

There has been a very large reorder business done on fall fabrics, with broadcloths decidedly in the lead, the large importations that have been made of these goods having been cut off. Our mills have been receiving the orders that would have gone abroad.

Poplins also have met with unusually large sales and they are still coming in freely.

Early in the months the various corporations making narrow width dress goods opened their lines at concessions in prices, from 2 1/2 to 5 per cent. below last season. This caused considerable unfavorable comment and it was suggested that it was done in fear of competition among themselves. Later the existing conditions effecting the cost of manufacturing caused advances in prices and still later some were held "at value," while others were withdrawn until prices can be intelligently made.

Dress goods in stock have been sold freely at full prices and in some instances advances have been obtained.

HEMP PRODUCTION IN THE UNITED STATES

By CHARLES RICHARDS DODGE

The growth of hemp in the United States is a very old industry, and fifty or sixty years ago the culture held an important position in our agriculture, the crop of 1859 reaching a total of nearly 75,000 tons. In that year it was grown in more than a dozen states, Kentucky producing over one-half and Missouri one-fourth of the total quantity. The crop of 1849 was over 34,000 tons, and at this period the wooden tubs which constituted the United States navy were rigged with native hemp, but of a better quality than is produced today. Between the years 1824 and 1842 the culture was frequently brought to the attention of Congress in letters, reports and resolutions, in an endeavor to encourage the production of a higher grade of fiber by water-retting, this process being considered necessary not only to fit it for cordage, but for the manufacture of sail cloth or canvas, as dew-retted hemp could not be used for naval purposes.

Prior to 1872 the cotton crop of the country was largely baled with flax and hemp bagging, but in the year named the duty was removed from jute butts, and the mills producing the native fibers were forced out of existence. For a time the average annual production of hemp amounted to about 12,000 tons, but for three or four decades it has dropped to 5,000 tons, some years showing a thousand or two tons better, and in one year, 1889, the total again approached the 12,000 ton mark. The reasons for the decline of the industry are many. The chief factors are the large use of jute in manufactures formerly made from hemp, and the introduction of manila hemp, which, with steel, has superceded common hemp for the rigging of ships, and for other marine uses, being a lighter and stronger fiber. A like decline in the culture of hemp has occurred in Europe, but particularly in France, for in past time the Breton peasant wore hempen clothing, and even the household "linen" was spun and woven from hemp fiber. But cotton goods, being cheaper, came to be used more and more, and the culture of hemp has steadily declined.

Hemp was formerly used extensively for clothing in this country, the Kentucky gentleman, before the war, being fittingly attired in summer in a suit of immaculate homespun. The chief employment of hemp fiber at the present time is in the manufacture of twines —binding twine to a limited extent—and in carpet yarns, while a little "tarred hemp" cordage is still used in the rigging of ships. The fact that the greater part of the crop is low-grade fiber has limited the consumption of the home grown product, for we import quite as much, or more, than we produce, and the imported fiber is of higher grade, that from Italy especially being very much superior, in color, fineness and strength, while even Russian hemp, the most inferior we import, is of a better quality. The present disturbed conditions in Europe can have but one result in relation to both flax and hemp, namely to curtail, if not to cut off entirely, our foreign supply in the near future; nor can it be resumed in a year and a day, even after the old conditions are again restored—if they are ever again fully restored —and the flax and hemp growing countries now engaged in deadly strife have resumed the peaceful pursuits of industry. Undoubtedly with the production of a higher grade of fiber in this country there would be less need for dependence upon a foreign supply. Fifteen or twenty years ago when we were producing largely a rough fiber worth only 3 1/2 or 4 cents per pound it was proved by experimental culture that fiber worth 6 to 8 cents per pound could easily be produced, and such fiber was readily purchased by the Eastern spinners.

At the present time the culture in the United States is still declining, Kentucky alone holding her own in a limited annual production, culture in the other states, where it has a footing, being spasmodic. In recent years Kentucky, Indiana, Illinois, Missouri and Minnesota have been the hemp growing states, though the industry has had slight footing on the Pacific coast, where a fine quality of fiber can be produced—and there has been experimental culture in the

far South. If production is increased it can only be brought about by improving the quality of fiber, and growing grades of hemp that will more nearly compete with the imported fiber. Kentucky and Illinois hemps, especially, being dew-retted, are very dark in color, harsh to the touch, and only fit for the roughest uses in manufacture. We can easily produce a hemp as good as the French (Breton) product, this being a light colored fiber, for the most part water-retted, and of even strength; it should be noted, however, that this hemp is not imported, save in trifling occasional shipments. In former years the finest of the French hemp was "softened" by rolling under a conical cylinder of iron weighing a ton or more, to fit it for manufacture into sheeting, shirting, canvas, and even fabrics for outer clothing. Russian hemp, which is of a better color than the American, may be said to come between Breton hemp and the average American. The hemps of other countries—excepting that of Italy, already referred to—are rarely imported. The hemps of China and Japan are of superior quality, but are grown wholly for home consumption. The ribbon hemps of Japan are so distinctive that they cannot be compared with the hemps of any other country, and therefore stand alone. Perhaps when the European supply fails, China and Japan may come to the rescue, though it would be more sensible to do our own rescuing and pocket the proceeds.

FIG. 1. CUTTING HEMP STALKS WITH A REAPING MACHINE

It should be borne in mind that hemp is not a crop that any farmer, without knowledge, can produce. In a recent article in this journal, on the subject of flax culture, the statement was made that the average farmer undertaking to produce a crop of flax, unaided, would make a failure of it. This is equally true in regard to hemp fiber production, which demands a certain skill in the after preparation which can be acquired only by experience. Even in the matter of growing the crop no two farmers taking up

the culture as a new thing would reach the same results. This was pointedly illustrated some years ago in a record of results with the crops grown by 20 New York farmers under contract with the Cable Flax Mills. Leaving out one absolute faliure, one farmer received as the net proceeds from his venture, $1.30 per acre; three received $3 to $10; six, $10 to $20; seven, $20 to $40, and three, $42 to $76, the average for the 19 a plant of comparatively easy growth, and the crop is not considered exhaustive to the soil. It is known to have been produced on the same land in Kentucky continuously for 15 years, beginning with a virgin soil. And the statement was made to the writer that when the land is sown to small grain and clover, hemp can be grown every third year without fertilizers, almost indefinitely. The plant grows so naturally that it is of almost

FIG. 2. THE OLD FASHIONED KENTUCKY HEMP BRAKE

being $18.22, which is only slightly lower than the net proceeds in hemp growing states today, or $20 per acre. Such a range as the above would hardly be possbile in Kentucky, however, where the "average farmer" is as familiar with the details of the hemp industry as with the production of corn or tobacco. That the bulk of American hemp produced in Kentucky—where the crop is said to have been cultivated before the nation was formed—is thus readily accounted for. Unlike flax, hemp is, in fact, universal cultivation in both hemispheres. There is hardly a country in Europe where it could not be grown, and hardly a section of the United States where it might not be produced, for in many localities it has escaped from cultivation and has come to be regarded in the nature of a "weed."

Nevertheless the hemp plant responds to the use of proper fertilizers; and there are soils which are particularly favorable to the growth for fine fiber—especially the limestone soils such as are found in Kentucky

(and in Brittany) and the alluvial soils of the river bottoms. The fine, tough fiber produced in parts of Shelby county, Kentucky, is thought to be due to a mixture in the soil of a whitish oily clay. As a general rule, however, light, dry soils, or heavy, tenacious soils, are unfavorable. The superior hemps of Italy are produced upon rich, strong loams, well pulverized, and properly fertilized. In Japan, where superb fiber is the rule, a well-drained, rich, sandy loam is chosen, the ground being given a heavy dressing of barnyard manure before plowing in November. After the soil has been well pulverized and the seed drilled in, it is given a top-dressing of one part fish guano, two parts wood ashes, and four parts animal manure. In France high fertilizing is the rule, as it is claimed that the equivalent of 1,500 pounds of fertilizers are absorbed for every hundred pounds of fiber obtained. The New York practice, when hemp culture was an industry in that State, was to use both barnyard manures and commercial fertilizers. In Illinois very little attention has been paid to fertilizing, while in Kentucky the practice is to burn the refuse and return the ashes to the land. In the above statements regarding the use of fertilizers will be found a hint in relation to improving the quality of American hemp fiber, for while it has been shown that the plant will grow on proper soils without fertilizing, as in Kentucky, the highest results can only be obtained by following more nearly the practice laid down for the production of fine flax fiber. At the outset this means a most careful soil preparation, for the finer and the more mellow the seedbed, the better will be the fiber. Of course it follows that if the fiber is only to be em-

FIG. 3. THE SHELY GIN OR HEMP CLEANING MACHINE

ployed in the manufacture of cheap twines and other coarse uses, such nice details are not essential. As a rule, in the United States, the land is fall plowed, and harrowed in the spring, first with the disk harrow, then with the smoothing harrow.

In selecting the seed the grains should be well filled, a bright gray in color, and glossy and heavy. In past time the seeding has been done both by broadcast sowing and by drilling. A method of "broadcast" seeding, in vogue in Shelby county, Kentucky, for many years, is to use the ordinary grain drill with the rubber tubes removed, a board being attached beneath the hopper. The seed falls on the board just in front of the

drill hoes, which do the covering. I learn that a special drill for sowing hemp is now manufactured. The quantity of seed sown per acre in this country varies. The practice in New York was to use 1 to 3 bushels, one bushel, it was claimed, giving better results than the larger quantity. In Illinois the rate has been 1 to 2 1/2 bushels. An old Kentucky correspondent, W. B. Hawkins, a successful grower of the "Blue Grass" region, informed me that the best rule was 33 pounds per acre, sown broadcast and afterward dragged in, as for any small grain. In France 1 1/2 bushels are sown ordinarily, though as high as 4 bushels are sometimes used. In Italy, where the practice also varies, 2 1/2 bushels is the quantity ordinarily sown.

After seeding there is nothing more to be done until the harvest, for a crop of hemp is a great weed killer, and for this reason has sometimes been sown to clean a soil that has become over foul with weeds. Kentucky hemp is considered ready to harvest in 100 days, or when the first ripe seed is found in the heads. The cutting was formerly done with a hooked instrument, or sickle-like knife, but in recent years both the reaper and mowing machine have been employed.

Fig. 1 shows a field being cut with an Osborn self-rake reaper, which requires a team of four horses to work; capacity 5 to 7 acres per day. More efficient machinery for harvesting the hemp crop is claimed to be a desideratum. In the United States hemp is dew-retted—that is, spread evenly over the ground in order that the action of dew and rain, or freezing and thawing, may dissolve the gums which hold the filaments together. This work is usually done in November and December; sometimes it is spread earlier, though the winter-retted hemp is brighter than that spread in the fall. In foreign countries the retting is done in pools, in tanks, and even in running water, like flax, though dew-retting sometimes is practiced.

It is a singular fact that in this age of labor saving machinery, and the use of power, a large part of the Amercian hemp crop is still cleaned on the old, cumbersome slat brake which has been used in Kentucky for more than a hundred years. And a similar brake, though less cumbersome, I found in use in Breton, France, and doubtless is still used there.

Fig. 2 is a fine illustration of the Kentucky hemp brake, with which a skillful negro can clean 125 to 150 pounds of fiber per day. It is said that more than three hundred patents have been issued for hemp breaking machines, nearly all of which have proved failures. A number of machines that have done more or less satisfactory work have been brought out in the past twenty-five years, the Shely hemp gin, Fig. 3, which has been in limited use in Kentucky and elsewhere during the past eight years, having the greatest capacity and turning out the cleanest and most uniform fiber. I have not seen this machine and am indebted for the details concerning it to L. H. Dewey, fiber botanest of the U. D. Dept. of Agriculture, to whom I am also indebted for the illustrations in this article from negatives made by himself. The Shely gin weighs about seven tons, but is mounted on wheels and is drawn by a farm traction engine which also supplies the power. A peculiarity of this machine is its feed, the hemp stalks being carried in sidewise, and the fiber also leaves the machine sidewise, thoroughly cleaned and ready to be twisted into heads and baled. The tow is thrown out with the hurds. With a crew of fifteen men it will turn out 1,000 pounds of clean, straight fiber per hour.

Never was a time more propitious for extending the culture of hemp and flax in this country than the present. In my article on flax in the July number of this journal the statement was made that were the European flax supply suddenly to fail, and American manufacturers were obliged to rely on the resources of their own country, there would be a flourishing national cultural industry in short order. No one dreamed of a general war in Europe at the time the words were penned. It is the unexpected that happens—and to all intents and purposes, unless the war should be of exceedingly short duration, the foreign supply of both flax and hemp has

"suddenly failed," for the countries chiefly involved in this war are the important countries upon which we depend for the bulk of our importations of the fibers named (Italy excepted). It must be borne in mind that the larger part of the present year's crop, doubtless, has not been saved. The first question to be asked is, "What are we going to do about it?" Would it not be well to "get wise," and at the same time to "get busy?" Perhaps in a not remote future we might "get the habit;" but in the immediate future there is a possibility that some of our manufacturers may find themselves between the devil and the deep sea. As the writer views the situation, the time has come for the manufacturers, who are the people most concerned, to take a lively interest in the matter, and do something worth while to the end of promoting the extention of both flax and hemp culture in this country.

A TENSION DEVICE FOR SPINNING FRAMES

The illustrations show an improved device recently patented in this country for keeping spindle bands under uniform tension. Fig. 1 is a plan of a section of a mule equipped with the new tension. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1.

Upon the frame-bar is mounted a rod par-

FIG. 2

FIG. 3

allel to the frame and above it. Adjustably secured to this rod are brackets. These arms are made of a single piece of flat metal. The metal is bent to form a seat to fit the rod and at the same time provide two forks, formed by bending the blank back upon itself so that the openings will register. The flaps are then bent over to hold the two adjacent layers of metal together and the ends are bent and the openings register. To secure these arms to the rod a square pin is passed through the openings and carries a set screw adapted to bear upon the rod and hold the seat in the arm firmly against the rod. In the square pin or nut there are grooves to engage the edges of the forks and prevent them from spreading apart. The

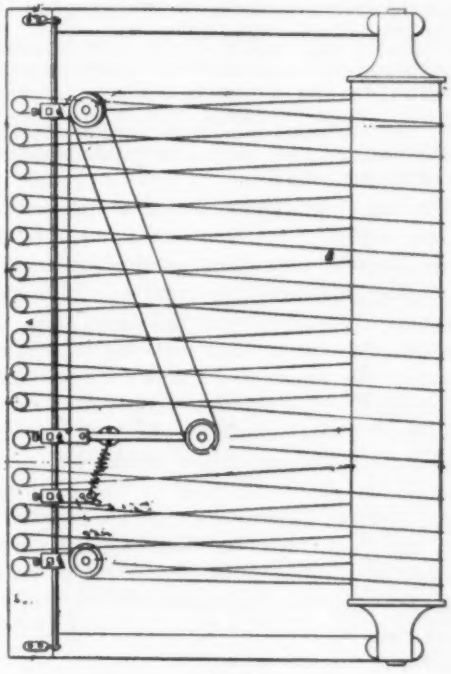

FIG. 1

pin is made slightly smaller than the openings to allow it to be easily taken out upon the removal of the set screw which in turn permits the arm to be readily removed from the rod, or, if the set screw is only loosened, to adjust the arm longitudinally of the rod. By this construction a very light pulley is obtained, which is desirable in a machine of this character as it can be made to start earlier and stop quicker than a heavy one because of the difference in momentum. In the spinning operation, the whole frame is reciprocated so that the yarn is wound, but before the change in motion takes place the pulleys must be at rest. Therefore, as the

change in motion cannot take place until the pulleys come to rest, the lighter the pulleys the more time will be saved. So also in starting a light pulley will start quickest and thus time will be saved in the operation of the machine.

THE SHORT TIME POLICY IN THE ENGLISH COTTON TRADE

By Our Regular English Correspondent

[In the following article our correspondent reviews the present state of the effort which has been exerted since 1904 by a considerable section of the European cotton trade to regulate the price of cotton by getting cotton spinners to restrict consumption in accordance with a prearranged plan. His statement as to trade conditions relate to the situation as it existed before the breaking out of the war.—Ed.]

The fact that business is bad in the British cotton industry has been announced in so many ways already that justification of the statement can hardly be required. The fact has been reiterated over and over again in the local news from such weaving centers as Burnley, Blackburn and Colne in particular; in the Manchester market reports and in the reports of the operatives' officials. Speaking of the European cotton industry in general, at the Paris meeting of the International Cotton Committee, Sir Charles Macara did "not think the outlook was ever blacker all round." The depression of business at large for substantially everybody other than spinners of Egyptian and of fine American counts is beyond doubt. It is, however, not easy as yet to find an exact measure of the badness. The export trade on which the industry almost entirely depends can be shown to be falling off. During June, for example, the shipment of cotton piece goods was only 498 1/2 million yards, as against the 615 1/2 millions of a year ago. The decrease is large enough in view of the adage that the difference between good trade and bad trade is ten per cent.

It is known that spinners are doing badly in respect of their margins, although some have made better bargains than others. The position can at least be suggested by comparison of market prices. Last Christmas when Middling was at 6.91 pence (13.82 cents), the quotations for 32s Twist and 36s Filling were 10 1/2 and 10 1/16 pence (21 and 20 1/8 cents) respectively. In late July with Middling at 7.35 pence (14.7 cents) the same yarns are quoted 10 1/8 and 9 5/8 pence (20 1/4 and 19 1/4 cents). Disregarding fine points, this means that cotton is up one cent and yarns are one cent down. Company reports showing adverse balances have been received, but not in number large enough to found a general conclusion. The stock market in mill shares is not always a sensitive barometer, for the stocks are variously held. In the Oldham share list there are securities that have held their own and even appreciated during the current year. More of them have depreciated, frequently by ten per cent. and a few by twenty per cent. The adversity is at all events not imaginary.

The customers of spinners, the weaving manufacturers, are taking less yarn. The raw cotton market none the less holds up and it is to meet this awkward contrariety of circumstances that the remedy of organized short time is being applied by the members of the Spinners' Federation. There are members who do not approve the policy and non-members who intend to turn the abstention of others to their own profit by running their spindles full time. The latter are in a minority and a very unpopular minority, but they cannot be coerced. Again there are members of the Federation who dislike the principle of organized short time and find it hard or impossible to square its practice with their theories. In arguing the case with a hard-pressed spinner the only conclusion arrived at is his question of "But what else can I do?" Necessity is a tyrant and spinners who have not large resources, or boards of directors are ready to take long risks, act as they must.

Sir Charles Macara, the chief apostle of concerted action, has set on record many times his conviction "that a great trade like the cotton trade cannot be dealt with by individuals simply looking at their own interests." Sir Charles is known to entertain opinions strongly hostile to those who prey

upon the Federation by running their mills full time when the federated mills are stopped. He carries further than do many Lancashire men his belief in organization for the employed as well as for the employer; and in the joint regulation of the trade by federations of masters and of men. His words on one or two occasions have seemed to favor the grant of coercive powers to a trade council, by making the will of a majority legally binding upon the minority of a trade. The idea is very repugnant to the principles upon which the Lancashire industry has been built up and, although its acceptation has not been tested, it is improbable, at least, that spinners could be carried so far towards collectivism. In this matter the president of the Federation is the extremist.

Macara has stated his contentment with the success of the short time manoevre of 1904, writing: "Had this proposal not been carried into effect, more especially in England . . . a disaster to the English cotton trade would have been inevitable." He has declared also his conviction that had organized short time been begun earlier this year the trade would not have found itself in so distressing a position at the present. His view of the success of the 1904 effort is not universally held.

William J. Orr, a member of the Federation who visited America with the Lancashire Private Cotton Investigation Commission in 1906, has asked these pertinent questions as to the outcome of that great endeavor.

> War is not followed by excessive mill flotation caused by the artificial shortage of stocks to meet the demand when it did come?
>
> Was it not followed by a large reduction in acreage and a short crop, due to the irregular and artificially-made requirements of the trade?

The impeachments have not been denied, although the admissibility of the word "artificial" in this connection has been questioned.

Excessive mill flotation is the cause of complaints not only from Sir Charles Macara, but also from the operatives and there have been proposals to make it illegal to build cotton mills until a joint committee of employers and employed have given their sanction to the extension. This remedy is not the only one that has been proposed. There are at least individual spinners and labor union leaders with faith in the use of a boycott. Under their plan those machinists, cotton brokers and supply people who furnished supplies to an "illegitimate" mill would be punished by the refusal of all other persons to do business with them. Moreover the unions would decline to allow their members to work in any unauthorized mills. The fact that these fantastic proposals have been seriously made and considered is evidence enough of the strong feeling against those who erect more and more spinning mills in Lancashire when there are already too many for profit. The building of mills is not stopped even by the prevailing depression. To quote an Oldham paper of recent date:

> Six mills are being built in this district: five will be mule mills and one a ring-spinning mill. One will be in Bardsley, one in Middleton, two in Chadderton and three in Crompton. The mills will provide accommodation for over half a million spindles.

Neither are the imports of cotton yarn stopped and the nearly $5 millions of cotton yarn imported in June represents about $500,000 more than a year ago. The British market is open to the foreign spinner, to whom short time in England is of advantage, for in combining to curtail production, spinners in effect combine to increase the cost of that which they do produce. The contention of Mr. Orr, and of those who think with him, is that in avoiding a temporary loss Lancashire spinners intensify the ills of which they complain and indeed sow a fresh crop of them. They promote foreign competition by laying an embargo on individual British efforts, give the speculative mill promoter his opportunity and—in the long run—make cotton dearer by discouraging the planter. The paraphrase fairly represents the contentions which are advanced and that may gain a wider expression.

The dearness of cotton and cheapness of yarn, relatively to each other, admit of no denial and the difficulty that they present has to be grappled with in one way or another. To the question, Which way? the individual-

ists reply: By letting every spinner take his own course: By letting those run who can afford to run and leaving the others to stand. The method is evidently capable of producing hardships and of ruining weak or overburdened concerns. The old way was to allow these undertakings to find their level. The new way is to give owners or managers of such mills an equal voice with the strong and able in determining whether spindles are to stop or to run. Liquidations are openly feared in case the weaker brethren are not protected and there are fears also for the depreciation of the value of the whole of the machinery and buildings in the Lancashire cotton industry, following on the collapse of the weak concerns. These prospects do not dismay everybody and there are those who hold that the first losses incurred by an individualist policy will be less than the ultimate losses caused by regulating the pace to suit the interests of the slowest.

Reluctance to adopt short time is capable of more than one explanation. The federated spinners are prepared to suffer much rather than allow the freebooting non-federated mills to profit by their sacrifices. Spinners with comparatively good bargains on their books are of course slower to vote for a stoppage than those who are without advantageous contracts for purchases and sales. There are also the differences of principle or theory which have already been outlined. It is proverbial that adversity makes strange bedfellows and under severe stress spinners will acquiesce in measures that they cannot comfortably reconcile with their convictions. Reluctance to agree has been marked upon this occasion. Spinners have waited to see whether the situation would not improve of itself. This reluctance is not likely to grow the less as the number of non-federated mills increases. The outsiders constitute a powerful brake upon the practice of short time and their increase in number helps to strengthen the influence of the individualistic school. It may be that the next suggestion of short time will bring spinners definitely to the parting of the ways; to the decision whether they are to go back to individual action or to go forward and to entrust the Federation with still greater powers over the liberty of individual concerns. When that question does arise in a form demanding an immediate answer the members of the Federation will not all be found upon one side, although doubtless then, as now, much will depend upon the pressure of external circumstances.

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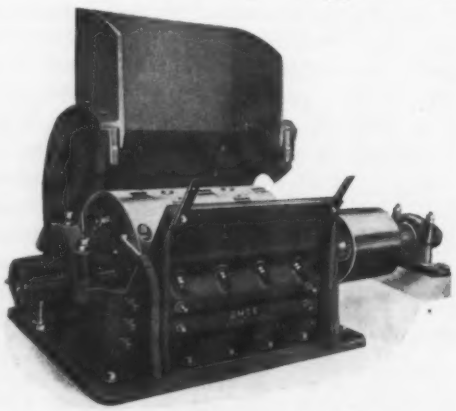
MACHINE FOR CUTTING LOGWOOD

Editor Textile World Record:

We have been using a large quantity of artificial dyestuff for our blacks. In trying to find substitutes we have learned where we can buy a large quantity of logwood in the stick. We are now trying to find a machine for chipping this wood and write to ask if you can tell us where we could obtain such a machine. Bentley (2371).

Upon making inquiries in the trade we learn that machines for chipping logwood are built by Mitts & Merrill, Saginaw, Mich. They write us as follows:

"We are enclosing circulars showing several styles of our machines. These are in common use for cutting up logwood and other dye woods by certain dye manufacturers and manufacturing druggists. The



A MACHINE FOR CUTTING LOGWOOD

heavier machines will cut up the wood from the logwood into reasonably fine chips, or coarser chips if greater capacity is desired. Our Factory Hog can be used very satisfactorily as a shredder for regrinding the chips."

The illustration shows the Mitts & Merrill cutter, which is known as the No. 3 M C Hogg. The cover is raised to show the cylinder and knives.

THE MANUFACTURE OF AUTOMOBILE TIRE FABRICS

The manufacture of automobile tire fabrics is one of present interest and growing in importance. There has been comparatively little literature on this subject and the following paper presented at the 13th annual meeting of the Alumni Association of the Philadelphia Textile School, by Alvin Kingsbracher, associated with one of the large tire manufacturing companies, is a valuable contribution to this subject and we believe will be of general interest to our readers:

AUTOMOBILE TIRE FABRICS

By ALVIN KINGSBACHER

This subject is a big one and, strange to say, its bigness lies not only in its possibilities, but in its realities. The present-day application of tire fabric to industry and to society is enormous, and one may naturally but wrongly infer that a greater development is apt to result from the present unprecedented demand for it.

I am prepared to contradict the belief—widely current, generally accepted and apparently supported by fact—that tire fabric is in its experimental stage. There have been so many innovations attempted, such as the substitution of ramie for cotton, the twisting of a wire with the component cotton threads of the yarn and the experimentation with other than plain weaves such as leno and similar ones—that the failure of all these has not only removed the possibility of further development in tire fabric, but has reflected greater merit on its present qualities and construction. In mentioning these various experiments it may be well to make evident in a brief manner the cause of their failures.

The substitution of a stronger material for cotton has necessitated the introduction of a fiber which has not the necessary properties of elasticity and flexibility. Any increase in strength without these qualities would not be considered an improvement, but rather a detriment. In twisting wire with cotton threads the difficulty encountered is to secure a wire of such a material as will possess the same elasticity as the cotton. Another feature of this construction is that the wire will tend to cut the cotton or other fibrous material.

In using leno or other weaves, which, by crossing the threads, yield a stronger fabric, the objection arises from the cutting action of the threads. The effect of tire service on a fabric is so peculiar that it would not be long before the threads would cut each other in the places where they cross. From these observations of what has already been tried, it is natural to suppose that tire fabric has long since ceased to be an experiment. It stands today as a scientific certainty and is as much a standard commodity as army duck or any such similar fabric.

Tire fabric has reached its height today and tomorrow, with increased knowledge of rubber compounds and tire construction, the importance of tire fabric will be greatly diminished. Even now the tire manufacturers, by using better and tougher rubber compounds and by employing better methods of tire construction, have made it possible to use carded and combed Egyptian fabrics, and in some cases even Peeler fabrics, whereas formerly Sea Island tire fabric was used exclusively.

This somewhat decreasing importance in respect to the fabric does not warrant the idea that it is not a vital factor in the tire. It is the body and upon it to a great extent depends the durability and strength of the tire. It is not my intention, nor have I the ability, to expound the theories of tire manufacture. My experience has been gleaned, firstly, in a cotton mill running exclusively on tire fabric, and, secondly, in a tire factory as a fabric analyst. It is my desire to combine these experiences in such a way as to give you not only a fair idea of how tire fabric is made, but also what is expected of it by the tire manufacturer.

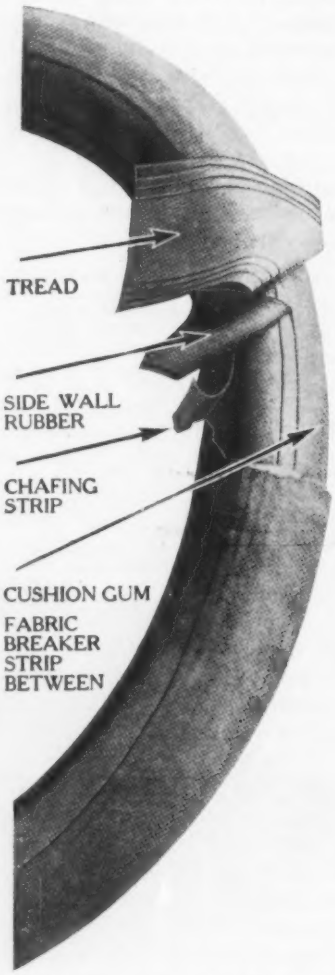
The automobile tire or pneumatic tire, as it is called, is a complex organization and combination of fabric and rubber. It has been created like most other inventions, to meet existing demands, and having arrived at its present efficient stage, has succeeded in establishing for itself a monopoly, opposed to which countless devices designed to supplant it have not even made an impression.

The name automobile tire fabric is generic. It includes many kinds of fabric which are used in the construction of a tire, but the most important of these and the one that is used in greatest quantity is the building fabric. It is estimated that of this style alone about forty million square yards are used annually. In addition to this building fabric there are various other fabrics that go into the making of a tire. These sundry fabrics include special constructions known as chafing fabric, breaker fabric, and other fabrics such as Osnaburgs, sheetings and tapes. The last two are used more especially in the process of tire manufacture and are not an inherent part of the tire itself.

Before approaching the subject of fabric construction, I wish to outline in a crude and desultory manner the various processes through which the fabric must go before it becomes part of a tire. When the fabric is received at the tire factory it is inspected by the proper officials, and of this I shall deal at greater length later on; but in this connection it is well to state that not all tire factories maintain a department of this kind. An inspection department speaks well for a high standard of quality, and the rigidness and thoroughness of inspection in regard to fabrics betokens a similar care and exactness in the selection of other materials and in the various processes of manufacture.

After the inspection comes the drying process. The fabric is run over hot rolls and all the moisture is extracted, as it is essential that the fabric be dry before it is coated with rubber. The "calendering" or "frictioning" process is the means of forcing the rubber compound into and onto the fabric. The spaces or "pores" in the fabric are filled with rubber and then the fabric is "skimmed" or coated with a layer of rubber. The fabric is now ready to be cut into strips, and the cutting is done on a 45° angle in order to secure a greater strength and to prevent the unraveling of the threads in the strips. These strips in various plies, depending on the size of the tire, are built on a mould or iron core. This in short is the preparation of the fabric for the tire.

The building fabric, as previously mentioned, is the body of the tire. It is the most important fabric, and as such must possess above all—strength, flexibility and elasticity. The fabric is made with a plain weave, and weighs approximately 17.25



ounces to the square yard. The yarns from which this fabric is made are 11/22.5 or 11/23. The twist in the single yarn is from 14 and 16 and the ply yarn is 4 to 5 turns per inch. The texture is 23 ends and 23 picks per inch. The gauge or thickness of the fabric is .040 inch. The water content should not be over 5 per cent. The take-up is found to be about 14 per cent. and the contraction of filling about 10 per cent., leaving normally a difference of 4 per cent. in the amount of warp and filling yarn stretch.

(To be continued.)

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

CREPE FABRICS

BY ROBERT DANTZER

Translated from the French by the Editor of the Textile World Record

For several years the term "crepe" has been applied to goods woven with irregular weaves, similar to that shown at Fig. 1, the peculiar character of the crepe fabric depending on the method of interlacing the warp and filling. About 1880 the Raschel crepes were placed on the market and were made by superimposing the points of one satin weave upon those of another. For example, a 4-leaf satin on a 5-leaf producing a weave design covering twenty threads in the warp and twenty in the filling. As frequently happens in the textile industry, the term "crepe" has acquired a new meaning and at present is used to designate a fabric having the surface puffed up or twisted into irregular form, the goods being used for women's wear.

There are various methods of producing the crepe effect, among them the following: A, by regulating the tension of the yarn; B, by a curling of the filling; C, by the twist of the filling; D, by chemical processes; E, by fancy effects; F, by finishing; G, imitation crepes.

Tension on the Yarn

Two sets of warp woven under varying degrees of tension are employed in the manufacture of piques, producing a pattern in relief. The threads under different tension are arranged regularly, one and one or two and one. The arrangement of threads under unequal tension to produce fancy effects has also been in favor, Fig. 2 showing a sample of this class. This cloth is woven with a plain weave and the warp is dressed 30 tight threads and 30 slack threads, requiring two beams. A greater length of yarn is delivered by the slack beam than by the tight one and as a result the slack stripe puckers up as shown, while the tight warp will show a take-up of not over 8 per cent., the slack warp will show as much as 60 per cent. The weave of this fabric is very simple, but the yarn for each stripe although woven in the same way, are drawn on separate harness. This class of crepe is known as "Alicienne compose," and is sometimes made with a different weave for each stripe, such as a plain weave for the slack stripe and a

FIG 1

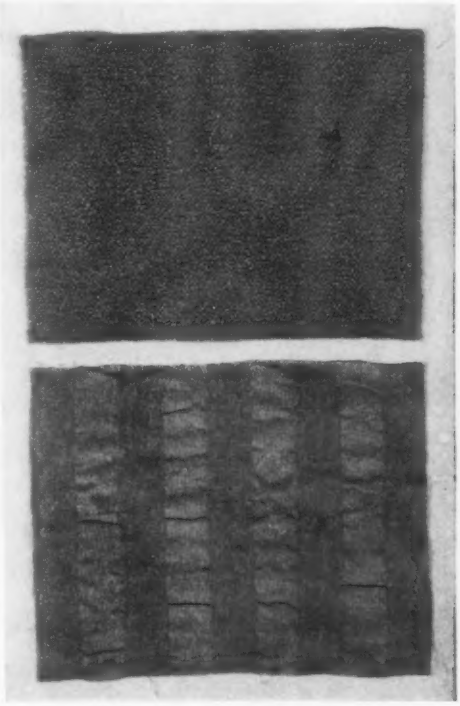


FIG. 2

twill for the tight stripe. This method produces a more pronounced crepe effect than when only one weave is used. Crepes can also be made with a double plain weave in which one set of warp is woven tight and the other slack. The slack warp puckers up on the face or back of the cloth. The Alicienne crepes are but rarely used, being found occasionally in cheap curtain stuff.

Curling the Filling

This process was used to a considerable extent toward the end of the last century, being employed for worsted fabrics. The filling is first knit into a fabric in order to curl the yarn on itself. The knit cloth is then boiled several hours in order to fix the twist of the yarn. After drying the yarn is raveled, wound on shuttle bobbins and used for the filling of the crepe. After weaving the cloth shrinks in width, producing the crepe effect.

Hard Twisted Filling

This method originated in the manufacture of crepe de chine which was first made in China. For many years the method of producing this effect was a mystery to the manufacturers of Lyons. About the middle of the last century Dugas, of Saint-Chamond, France, discovered the secret. The warp is made with raw silk having 6 to 10 ends, the warp being reeded 100 to 125 threads per inch. The filling is woven 2 picks of right twist, 2 picks of left twist, this twist varying from 60 to 100 turns per inch, the cloth being woven with 75 to 100 picks per inch. To prevent the mixing of the two kinds of filling, one of them is woven in the color and the other is slightly tinted with indigo. The filling, being twisted very hard, is steamed before weaving. Figs. 3 and 4 show two examples of genuine crepe de chine. Figs. 5 and 6 are the same class of goods, and known as "crepone" and "crepe Laos," being made with tussah filling.

FIG. 7

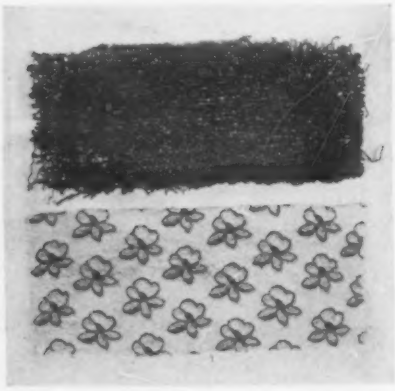


FIG. 12

Figs. 7 and 8 show two qualities of crepe de chine made with cotton warp and filling. These goods are woven with 35 to 62 threads per inch in the warp and 30 to 38 picks per inch. The filling is hard twisted and woven 2 right twist, 2 left twist. Fig. 9 shows a crepe de chine with an organzine warp, the filling being hard twist worsted. This sample is in the grey as it comes from the loom. Not having been subjected to the action of very hot water and soap the surface remains uniform. Fig. 10 is a crepe de chine which is made in a wide variety of shades. Figs. 11, 12 and 13 show different patterns in printed crepe de chine. The Venetian crepe shown at Fig. 14 differs from crepe de chine only by the use of very coarse filling. The Chinese crepe, Fig. 15, is also made with very coarse filling. Fig. 16 shows a crepon made with organzine in the warp, and several ends of worsted twisted together for filling. Fig. 17 shows a worsted crepe. Fig. 18 is a crepon woven with four picks of right twist, four picks left twist, the effect being very pronounced. The effect shown at Fig. 19 is obtained in the same way. The pompadour crepon shown at Fig. 20 is a printed fabric.

FIG. 13

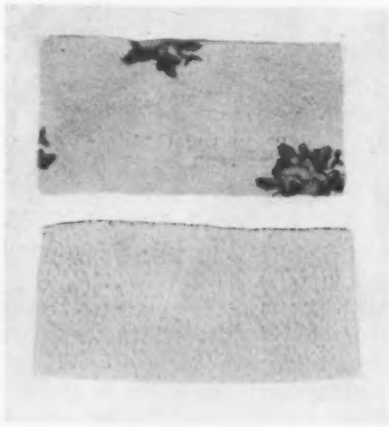


FIG. 17

The Pekin crepe, Fig. 21, is a fancy stripe obtained by using two colors in the warp. The Mandchou crepe, Fig. 22, has fine lines

produced by silk threads in the warp. Figs. 23, 24, 25 and 26 illustrate a number of combinations of various kinds of crepe. The pattern in the jacquard crepe, Fig. 27, is pro-

FIG. 18

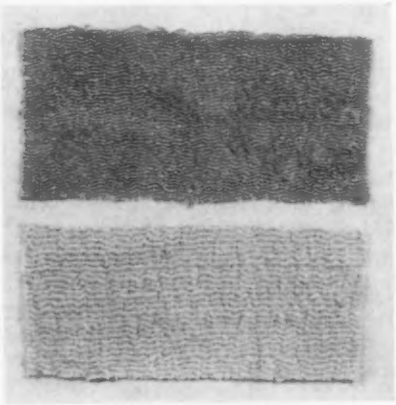


FIG. 19

duced by the floating of the warp. The motifs are woven with a satin weave in the patterns, Figs. 28 and 29.

Fig. 30 shows a motif by floating the warp on a crepon ground. In all the fabrics so

FIG. 21

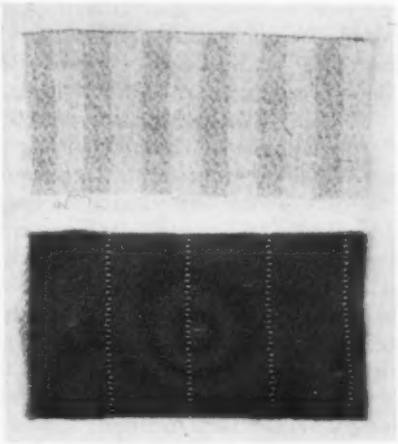


FIG. 22

far shown the hard twist of the filling in two directions causes the warp yarn to lie in a wavy position. Frequently the filling is sized before weaving to facilitate the work. When the warp is crowded together the crepe effect is prevented. This is the method by which the pattern shown at Fig. 31 is obtained. Great care is necessary in dyeing these goods because the shrinkage begins as soon as the fabric is immersed in the hot soap solution.

As the goods are made either of silk, wool, cotton, wool and silk, wool and cotton, silk and cotton, or even artificial silk, it is necessary to use the acid dyes, cyanol, tetracyanol, quinoline, Orange E M, and similar

FIG. 27

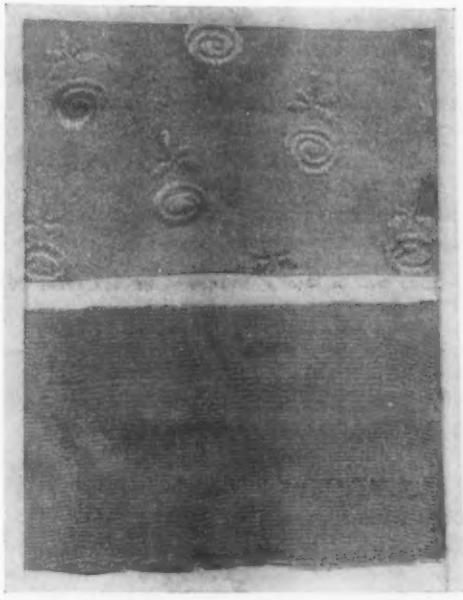


FIG. 32

dyestuffs. After dyeing, the goods must be handled without subjecting either warp or filling to tension.

Fig. 32 shows a fabric made by the same methods as those employed for the goods already described, but the stripe effect is obtained by reducing the number of threads in the warp. Fig. 33 is a sample of wool and silk crepe as it came from the loom. Fig. 34 is a sample of satin de Chine in the grey state, being made with two kinds of twist in the filling. The shade of the reverse twist is very apparent in this sample. Fig. 35 is a worsted crepe, but in place of being woven

plain it is woven with an irregular weave and two kinds of twist in the filling. This style of goods has been very popular for twenty years. Fig. 35a belongs to the same class, both warp and filling being woven as follows:

	Warp	Filling
Sea Island	160	180
Combed Egyptian	140	155
Carded Egyptian	115	130

Chemical Processes

Mercerizing is the process most frequently used. The caustic soda solution is printed directly on the goods by means of rollers.

FIG. 33

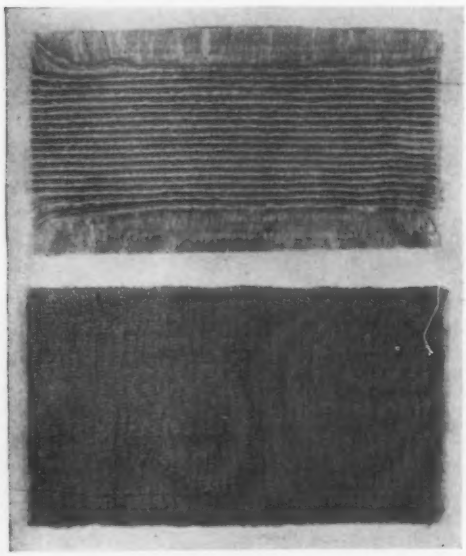


FIG. 35

The goods are dried and after lying for a sufficiently long time to obtain the maximum effect of the caustic, are rinsed well to remove the alkali. Those parts of the goods that have come in contact with the caustic shrink and produce the crepe effect. The same result is obtained by printing with a gum resist and then passing the goods through the caustic soda solution at 30° Be. Colored effects are obtained by printing direct with colored solutions thickened with gum or gelatine and then steaming before passing through the caustic. This method was first used by Depoully Bros. at Roubaix.

The crepe effect is also obtained by utilizing the property which animal fibers possess of dissolving, instead of contracting in the presence of alkalies. If, however, the material is exposed to the action of the alkali for but a short time and at a low temperature the fibers are not dissolved. If cotton is mixed with wool or silk the latter retain their artificial form, while the cotton contracts. The goods are made with a cotton thread alternating with silk or wool. The pieces are passed through a caustic solution at 30° Be:, the result being a shrinkage amounting to as much as 40 per cent. All of the vegetable fibers contract while the silk and wool are not affected, thus causing a rough crinkled effect on the face of the goods. An unlimited number of patterns can be produced by varying the method of weaving.

(To be continued.)

ENGLISH NOTES

By Our Regular Correspondent

The war, which is only in its first week at the time of writing, is no less a calamity to British textile interests because it comes while materials are high in price and on top of some twelve months of poor trade. In time of war the position of industries which are dependent upon other countries for substantially the whole of their raw material, and upon oversea markets for the sale of most of their manufactured products becomes of a manifest awkwardness. The United Kingdom produces no cotton, silk or jute, only about one-quarter of the raw wool consumed in its mills and about one-tenth of the raw flax. The cotton industry depends on export for the sale of nine-tenths of its piece goods and the woolen and worsted industries for one-half or more of their cloths. When the transport of these goods is jeopardized, and all the machinery of credit whereby they are bought and sold breaks down, there is of course a complete paralysis of the system. From this first total incapacitation the industries are apparently about to emerge and to pass into a state of partial disablement affecting certain branches more than others.

The Continental markets are closed, whether for the supply of raw material or the reception of yarns and goods. The Continent does not supply British mills with much else than flax and tow from Russia and the Low Countries, woolen rags also from those sources and silk from Italy and France. The cessation of supply is of principal importance to the linen industry and the ability of the Irish and Scottish mills to deliver goods must be vitally affected. Continental fiscal policy has reduced the relative importance of the European markets for British piece goods. Apparently the countries nearer than Turkey took only about 400 million yards of cotton cloth last year, when over 7,000 million were shipped. Approximately one-fourth (28 million yards) of the export of British woolen cloth went to Europe and one-sixth (10 million yards) of the worsteds and stuffs. In general these quantities represent specialties, some of them in choice designs and high qualities, different in some important respect from the fabrics made in the countries of destination. The business is of great consequence to some individual concerns and to sections of the industries, but it is not out of the European market that British manufacturers get their bulk business.

The protective legislation that has excluded manufactured cloth has increased the trade in semi-manufactures, notably in yarn. It was estimated in 1907 that thirteen per cent. of the total British production of cotton yarn was exported in the yarn stage and the estimate may still be accepted as a rough guide. Last year the export of cotton yarn from England was 210 million pounds, of which two-thirds went to European countries and 91 millions of it to Germany and the Netherlands. The export of wool tops was 43.6 million pounds, or roughly one-sixth of the estimated production, and substantially the whole of this went to the near European countries. During last year 75 1/2 million pounds of worsted, mohair and alpaca yarn was exported and of this 42 millions went to Germany alone. The figures mean that something between one-fourth and one-fifth of all the worsted spun in England during 1913 went to German looms. The particulars may help to show to what extent British textile interests are directly affected by the happenings that have brought the industries of Europe to a stand. They do not reveal the amounts of money owing for goods already shipped, or tell the length of time that is likely to pass before affairs recover their normal swing. It will be seen, however, that they reflect great potential misery and give the English textile public the sharpest cause to deplore the war.

* * *

The coming of war was watched with a sense of incredulity and in the fervent hope that British neutrality could be arranged, although the losses threatened to be equally great one way as the other. The approach was watched absolutely without panic, with a notable absence of display of feeling and a growing appreciation of the gravity of the case. The Liverpool Cotton Exchange was closed as a precaution against a raid upon prices, arrangements for dealing with spot and afloat cotton were improvised and a basis for the closing of existing hedges was fixed. On the wool market the situation was marked by the absence of dealings, but not by any immediate fall of prices. In general those mills that have been doing most badly for months past have been the first to shut down and apparently a great many others will be driven to take the same step. Demands for the immediate delivery of blue cloth and khaki have been made upon Government contractors and the 10-hour factory law was suspended in the case of Rochdale manufacturers of army flannels.

The Wholesale Textile Association representing the leading jobbers of drapery in the home market adopted a resolution against advancing prices of any goods required for the military forces, or necessary to the poor, and promising retribution against any parties guilty of cornering and inflating prices. The manufacturers who met to consider the position recommended all parties to do their best to run their machines and keep the workpeople in employment. It stands

to the credit of all concerned that they have endeavored to look upon the facts with an eye to the greatest good of the greatest number.

* * *

It may be asked whether British manufacturers expect nothing but bad from the war. Much depends upon the fortunes of battle, but there are conceivable circumstances in which their operations will be less disturbed than those of the belligerents in Europe. During the continuance of war England is in an obviously better position to ship textiles than are the Continental countries. After the war she will not improbably be the first to benefit from the establishment of peace. The experience obtained in the Franco-Prussian war of 1870 does not strictly apply to the new conditions, but the cessation of European manufacturing at that time was of immense benefit to English mills. Banks, warehouses and mills built out of Franco-Prussian profits confront the eye anywhere in the wool manufacturing towns of the West Riding. Stories still pass current of how weaving manufacturers spent their time imploring spinners to allow them to take back a few small warps in their gigs. Certainly fortunes were made by beginners who were not all able to read and write and in the shoddy towns there were profits per month that would not have been bad if they had been made per year. The experience cannot repeat itself universally, but it would be difficult to deny that in particular departments there may be profits to be snatched from foreign markets.

* * *

A Government proclamation was issued prohibiting the export from the United Kingdom of articles which may be used in warfare. It is not at all surprising to note in the list aeroplanes, explosives, oils, projectiles and the like. What entitles the list to present notice is the inclusion of certain textiles—hempen cloth, cotton suitable for the manufacture of explosives, cotton waste, silk cloth, silk braid, silk thread suitable for cartridges and silk noils. The list is possibly a little old-fashioned in its reference to hempen cloth, although this may deserve a place for its scarcity and its wearing power. Low cotton and clean waste are used after nitration as explosives. The silk cloth specifically aimed at is presumably coarse cloth made from noils and used to form non-inflammable bags for ammunition. Silk noils doubtless owe their place jointly to this use and to their employment as stuffings for hospital mattresses.

* * *

At the present stage not much that is unknown to American textile manufacturers can be said from an English standpoint as to the ways in which they are likely to be affected by the war. Some effects must obviously be shared by American and English manufacturers in common. The effects upon prices, credits and the movement of material touch all active manufacturing people. The cessation of deliveries from Continental mills is a joint interest also and one which may easily result in diverting the trend of fashion. For present purposes the main question is how the situation of the English industry, which has temporarily lost so much of its regular trade, is likely to react upon the American market. Writing before the insurance upon war risks has come down to a figure which makes extra-European trade practicable, one is at some disadvantage in forming a judgment. It can, however, be said that England fully expects to keep the ocean trade-routes open and to maintain export business upon a considerable, albeit modified, scale with the distant countries. It is expected that England will supply all demands for her regular makes and will fill some orders that ordinarily go to Germany, Austria, France and Belgium. It is hoped that those diverted orders, together with the special demands for army goods will provide a fair body of work for British mills.

The closing of the European markets of course lends additional interest to those that are open and the war is likely to quicken competition for American orders. The Lancashire cotton industry perforce looks to India, China and the East for its bulk business. The shipments of cotton to the United States do not amount to two per cent. of the export of the last seven months. The

woolen and worsted men are relatively more interested in the American trade. One may quote Victor Edelstein of the Bradford commission house, Edelstein, Moser & Co., who has said: "As long as the Continent is shut off we shall have to seek our trade in America and Canada." It may be that South was included with North America in this general statement and even in this year of heavily reduced shipments to Latin America those countries have taken 5 1/2 million yards of woolens, or approximately the same quantity as the United States.

In any case it is clear that the United States market is made more than commonly attractive to English sellers by the recent turn of events. The particulars abstracted from British returns show that largely increased quantities of wool goods are being shipped and that in cotton goods there is also a marked development. A table for seven months is given below:

Exports U. K. to U. S. in Seven Months ending July 31

		1913	1914
Cotton yarn	lbs	3,479,100	3,580,800
Cotton piece goods	yds	23,322,700	36,719,700
Worsted yarn	lbs	34,100	1,372,400
Woolen tissues	yds	1,200,300	5,644,000
Worsted tissues & stuffs,	yds	4,792,100	19,777,100
Carpets .. sq	yds	77,600	286,500
Spun silk yarn	lbs	382,480	426,086
Silk broad stuffs:			
pure	yds	164,779	125,889
mixed	yds	211,415	878,208
Jute yarn	lbs	221,400	1,215,000
piece goods	yds	49,514,700	40,717,000
Linen yarns	lbs	1,264,700	1,639,000
piece goods	yds	67,300,600	69,873,600

A glance at the following particulars referring to the month of July alone will show that the increase is proceeding and did not occur only in the first months of the new tariff.

British Exports to the United States July only

		1913	1914
Cotton piece goods	yds	2,840,400	4,551,100
Worsted yarn	lbs	6,200	249,700
Woolen tissues	yds	209,000	1,402,600
Worsteds and stuffs	yds	641,900	2,928,500

In 1894 the number of spindles in Lancashire was about 43,000,000; in 1904, about 45,000,000 and in 1914 they are about 59,000,000.

MERCHANDISE MARKS LAWS IN FRANCE

Report by A. W. Thackara, American Consul General at Paris

Paris, April 27, 1914.

Editor Textile World Record:

I am in receipt of your favor of April 9, 1914, with reference to the laws of France for preventing misrepresentation and fraud in the sale of goods.

I notice in your interesting pamphlet regarding misrepresentation and fraud in the sale of goods that you make reference to the Merchandise Marks Act of the United Kingdom. In France there is nothing precisely corresponding to this Act. There is, however, the law of 1857, which is the basic law on the subject in France. This has been amended by subsequent decrees, but the matrial law now in force is found in that of the law above mentioned.

Foreigners benefit by this law on equal terms with the French. The trade mark in France is optional. A manufacturer who is aggrieved by fraudulent imitation simply sues for damages, whether or not his goods are under the trade mark registration, but the registration of the trade mark is a most valuable presumption in favor of priority and under all circumstances to be advised. This is similar to the question of copyright, as there is no copyright in France in the same sense as the United States. There is only what is called the authors' rights (Droit d'auteurs) which virtually works out in the same way as our copyright.

The penalties for the breach of the trade mark law are severe. They apply to counterfeiting a mark or using a counterfeit mark, using the trade mark of another or selling goods with counterfeit marks. The penalties are from 50 to 3,000 francs with imprisonment of from three months to three years or either of these punishmnts.

Trusting the above information will be of some service to you, I am,

Very respectfully yours,

M. W. Thackara,
Consul-General.

THE MANUFACTURE OF ELASTIC FABRICS

BY SAMUEL BROWN

(Continued from June.)

The articles on elastic web weaving would be incomplete without some mention of the suspender which is commonly known as the "Guyot." This model, which has had longer life, and attained more popularity than any other known make, was introduced in France thirty years ago by Charles Guyot, from whom it derived the name it has always borne. The large sales which quickly followed its introduction into this country soon led to imitations, followed by litigation over infringements of patent rights, all of which, however, have expired. Several manufacturers are now making and distributing large quantities of these goods.

The Guyot suspender is made of three distinct fabrics, each one of which requires a separate loom. Fig. 88 shows a pair of these suspenders. The main part, A, is a non-elastic web 1 1/8 inches wide, which may be made either plain or fancy, and needs no special description. The back ends, B, are elastic, 1 1/8 inches wide, made to match in design and coloring the non-elastic or main part, and having a button hole woven in at regular intervals. The front straps, C, are non-elastic, 9/16 inch wide, likewise made to match the other parts. These also have button holes woven in. The straps are so stitched and threaded through a special double barred metal loop that they will run easily and respond to every movement of the body of the wearer.

A special cam loom has been designed by the Crompton and Knowles Loom Works for making the front strap. This loom alternately weaves the button holes at any desired place and at the same high speed at which the plain part is made. This is accomplished by the use of two banks of shuttles, both of which are running in the same direction at every pick of the loom; but only one of which (the upper) is engaged with the cloth, while the plain part of the goods between the button holes is being woven, the other bank running "dead" underneath the goods during this time. When the button hole is about to be made, two distinct sheds are formed, and then the two banks of shuttles are engaged, the upper bank on one half of the shed, and the lower bank on the other half, until the completion of the button hole. Then one shed is again formed instead of two, and the upper bank alone resumes the operation of weaving another section of plain strap.

This process of changing from single to double shed as accomplished by the use of a specially designed cam jack, made in two sections, to which are attached two separate

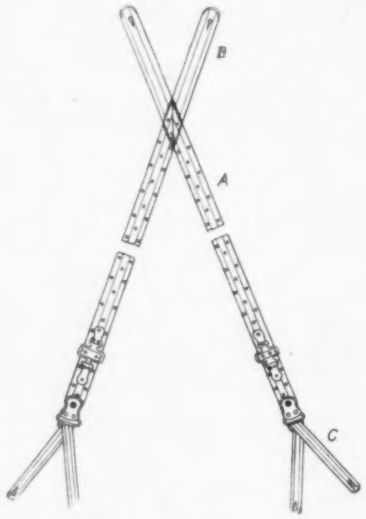


FIG. 88. THE GUYOT SUSPENDER

harness frames, in each of which two of the straps are drawn. While weaving the plain strap both the sections of the cam jack operate side by side from the same cam, but when the button hole is called on, a device for spreading each pair is operated, and the two sheds are formed. At the same time a lever movement changes the position of the lathe so that the two banks of shuttles properly engage the two sheds. The loom is arranged with proper facilities for governing the length of the strap, together with the length and number of the button holes. In changing backward and forward from plain to button hole and the reverse, there is a liability of a perceptible "grinning" in the goods, or open place in the picking at the

point where the change takes place. This may be entirely corrected by an attachment, which provides for the stopping of the operation of the take-up gears for several picks by raising the operating pawl. This movement is communicated from the device which governs the length of the straps.

When the lower shuttle is not engaged in the button hole shed, the filling will run loose, going backward and forward beneath the goods and will then need trimming off between the button holes. This trimming, however, may be avoided by operating the center binder thread, which is put in a skeleton harness, giving it an extended shedding so that this particular thread may be dropped below the main shed and allow the lower shuttle to engage it, by which process the thread is bound in the goods at every pick and will not need trimming.

The elastic part of the suspender is also made on a special loom having a rise and

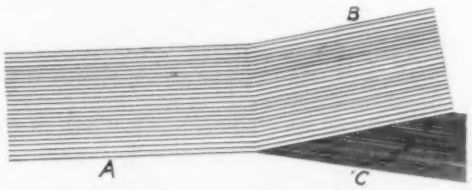


FIG. 89. A SECTIONAL WEB

fall lathe movement. A chain fancy head movement is equipped with a "gem multiplier" for regulating the length of the plain part. The back end loom has recently been put to a new use in the making of an elastic web to be used by the corset trade, which has small sections of non-elastic woven in at intervals, intended to be used where each section of web is stitched to the corset.

Still another kind of sectional web is made on the same type of loom, in which for a given distance a length of regular elastic web, A, Fig. 89, is woven by the use of one bank of shuttles. Then the web is operated for another given distance, making the two non-elastic sections, B and C, using both banks of shuttles alternately, in the same manner as when weaving the Guyot back end button hole. While this double non-elastic section is being woven, however, the rubbers and binders lie dead between the two and are afterwards trimmed off.

Taper webs of various kinds and widths and for different purposes have from time to time made their appearance and one of them will illustrate the type. The most practical has perhaps been the wide taper web intended to be used for an abdominal belt, in which a width of say 4 inches is sufficient for the back, while a width of possibly 6 inches is needed for the support of the abdomen. Such a web is constructed in the

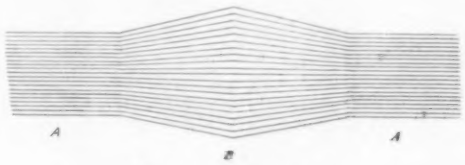


FIG 90. A TAPER WEB

regular way, except that it is woven on a deep front reed made to taper from top to bottom from fine to coarse. This reed is arranged in a reed pocket attached to the lathe bed, but designed to slide independently up and down behnd it. Underneath the lathe there is an adjustable screen mechanism, which is so operated as to remain stationary any length of time and then to work up and down again in any given period, so that a web may be produced similar to that shown at Fig. 90. While the rubber cords at A are lying close together, they gradually spread open at B, and then return to their original position. In the part at A the goods, if properly constructed, will lie perfectly flat. The opening of the cords at B will give more freedom to the individual rubber strands and cause them to belly. This rounding formation adapts them for the purposes for which they are intended to be used. Various modifications of the taper web may be made, for a variety of purposes, but the same general plan is applicable to all.

The value of raw wool imported into Canada during the fiscal year ending March 31, 1914, amounted to $1,872,089, compared with $2,068,028 for the same period last year and $1,555,395 for the year previous.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

This Series began in July, 1911

Translated and Revised by Samuel S. Dale

COMBINATION WEAVES

Under this head are included all weave patterns in which two or more weaves are combined. In view of the vast number of weaves it is evident that we can consider and illustrate here only the most general of the principles applicable to their combination.

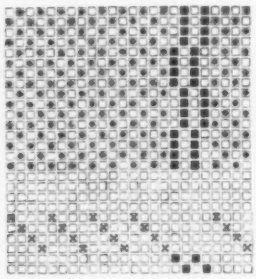


FIG. 1569

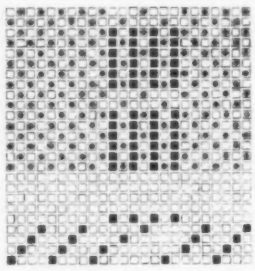


FIG. 1570

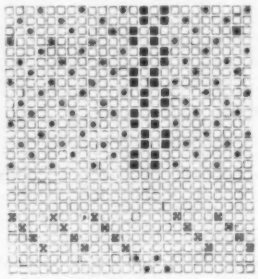


FIG. 1571

These weaves may be divided into six classes: 1, Longitudinal stripes; 2, Cross stripes; 3, Plaids; 4, Checkerboard effects; 5, Figured patterns; 6, Transposed boucle cloths.

These classifications relate only to weave patterns and do not include color effects on a smooth face with a single weave.

1. Longitudinal Stripes.

When two or more weaves are combined care must be taken to have the weaves "break" with each other at the line of junction. The risers of the first and last threads of each weave stripe must come opposite sinkers of the adjoining thread of the adjacent weave stripe. In this way the distinctive character and limits of each weave are preserved in the finished cloth as in the woven fabric.

If the two adjacent threads belonging to different weaves do not break with each other, the stripes are made irregular in width owing to the floating of the threads across the dividing line, and the desired effect is lost. In fulled goods the imperfect junction of two weaves may cause a thick or raised place in the cloth.

A break of a twill with a twill, or of a satin with a satin is effected by setting the twill line or ridge of each so that the risers of one will come opposite the sinkers of the other, Figs. 1581 and 1582. This is a general rule which it is not always possible to follow exactly.

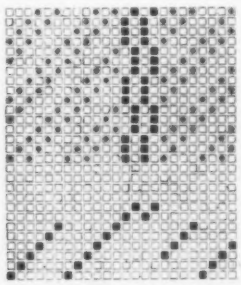


FIG. 1572

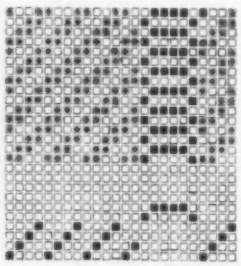


FIG. 1573

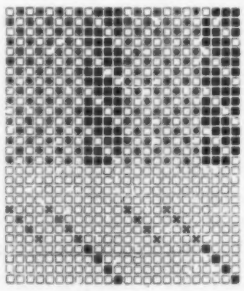


FIG. 1574

Fig. 1569 shows a plain weave for the ground with a rib stripe. It is not possible to obtain a perfect break between the two weave stripes, but the close interlacing of the plain weave prevents any serious irregularity.

Fig. 1570 is a plain ground with another

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form of rib stripe. In these patterns the stripe is reeded twice as close as the ground;

Fig. 1574, plain ..... twill
Fig. 1575, figured ..... rib

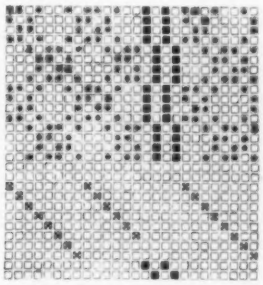


FIG. 1575

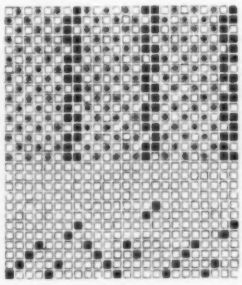


FIG. 1576

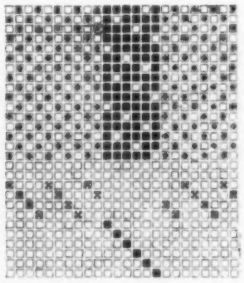


FIG. 1577

thus, if the ground is reeded 2 in a dent the stripe will have 4 in a dent.

Figs. 1569 to 1584 show examples of weaves combined as follows:

Fig. 1576, plain ..... broken twill
Fig. 1577, plain ..... 6-leaf satin
Fig. 1578, twill ..... broken twill
Fig. 1579, twill ..... twill

FIG. 1579

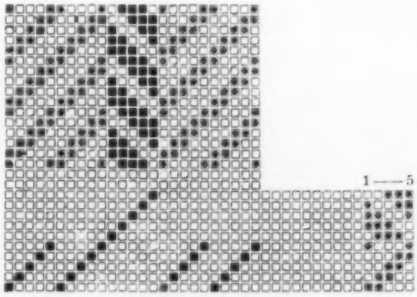
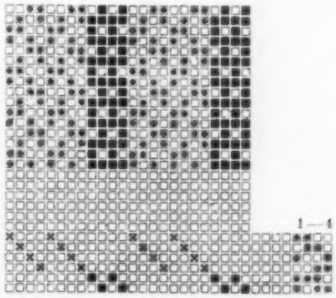


FIG. 1580



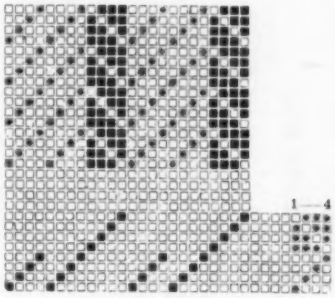


FIG 1581

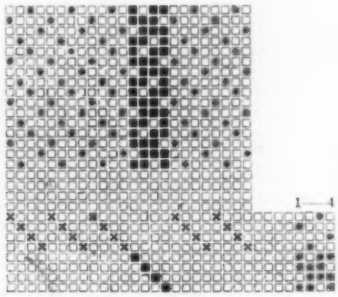


FIG. 1582

	Ground	Stripe
Fig. 1569,	plain	rib
Fig. 1570,	plain	rib
Fig. 1571,	broken 4-leaf twill	rib
Fig. 1572,	twill	rib
Fig. 1573,	twill	filling rib
Fig. 1580,	broken twill	plain with stuffing pick
Fig. 1581,	twill	twill
Fig. 1582,	broken twill	broken twill
Fig. 1583,	5-leaf satin	5-leaf satin
Fig. 1584,	6-leaf satin	6-leaf satin

The numbers in Figs. 1579 to 1591, Fig. 1593 and Fig. 1594 indicate in each case the first and last picks in the chain draft.

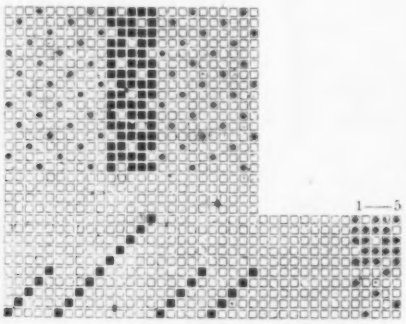


FIG. 1583

It is more difficult to make the adjacent weaves break with each other when the

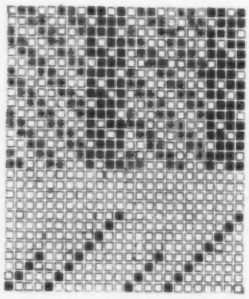


FIG. 1578

stripe does not include an even number of weave patterns or when the threads in the weave pattern are not divisible by those in the stripe.

When a warp satin is combined with a filling satin to form stripes of equal width, or of which one is a multiple of the other, the

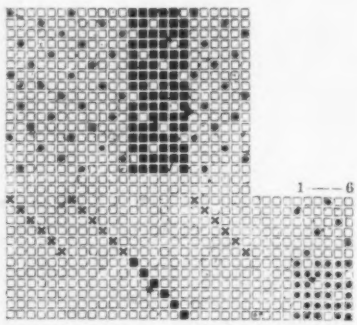


FIG. 1584

face float (sinkers) at the end of each weave will come opposite to the adjacent back float (risers) of the succeeding weave, as shown at Fig. 1583. If a certain number of warp threads, say 2, for example, are omitted at the end of one stripe, the break of the two weaves will be preserved if the same number of threads (2) are omitted before beginning the next stripe.

If the threads in each stripe comprise an even number of weaves, each stripe is drawn in straight. If, however, a number of threads are lacking to complete the last course of a stripe, an equal number of shafts belonging to the other weave are skipped before beginning the drawing-in of the next stripe. Figs. 1585, 1586, 1587 and 1594 are examples of this construction and show the method of drawing-in as well as the resulting break of the combined weaves.

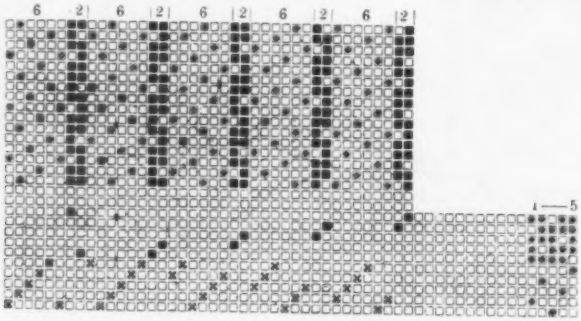


FIG. 1585

Various stripes obtained by combining weaves are seen at Figs. 1585 to 1607:

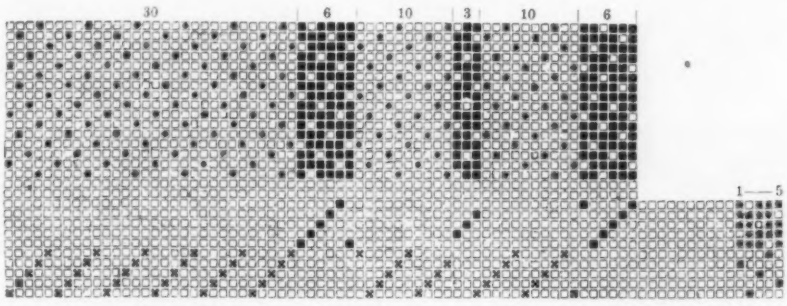
	Ground	Stripe
Fig. 1585,	5-leaf satin	5-leaf satin
Fig. 1586,	5-leaf satin	5-leaf satin
Fig. 1587,	8-leaf satin	8-leaf satin
Fig. 1588,	5-leaf diagonal..	10-leaf diagonal
Fig. 1589,	double plain	filling rib and plain with stuffing pick

shown at Figs. 1573, 1590 and 1593.

Other combinations of weaves are shown at Figs. 1596 to 1607, only eight threads of each weave being shown in each case.

Drawing-in. It is evident that the threads of each weave in a combination weave must be drawn on a separate set of shafts when the weaves are of a distinctly different character. The shafts of the closer weaves, that

FIG. 1586



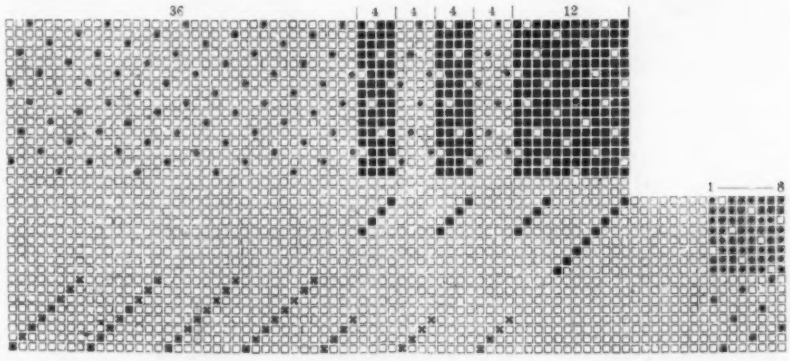


FIG. 1587

Fig. 1590,	5-leaf diagonal	filling rib and twill
Fig. 1591,	double plain	filling rib and twill with stuffing pick
Fig. 1593,	double plain..	filling rib and twill
Fig. 1594,	6-leaf satin	6-leaf satin

If a twill, satin, crepe or other weave is to be combined with a filling rib, extra points are inserted to separate the rib from the weave with which it is combined, or an extra thread woven plain is inserted between the rib and adjacent stripe; the latter method is

is, those with more frequent intersections, should be placed in front next to the reed.

Filling chain. The number of picks or bars in the filling chain must embrace an even number of each weave pattern. Thus, if a 3-pick and a 4-pick weave are combined the filling chain must have at least 12 picks, as this is the smallest common multiple of 3 and 4. Again, if the separate weaves are 8-pick and 12-pick respectively, the filling chain must have at least 24 bars. In Fig. 1592 the filling pattern must cover at least

FIG. 1588

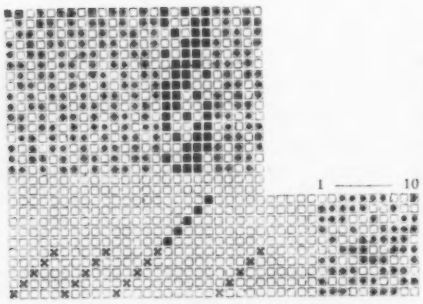
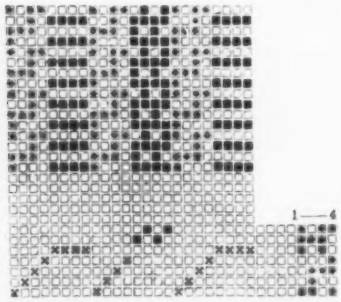


FIG. 1589



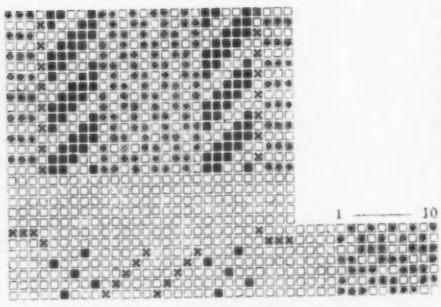


FIG. 1590

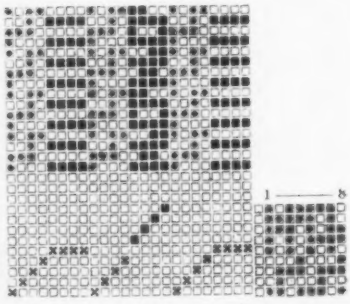


FIG. 1591

FIG. 1592

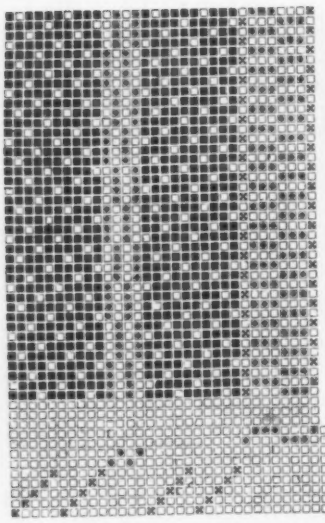
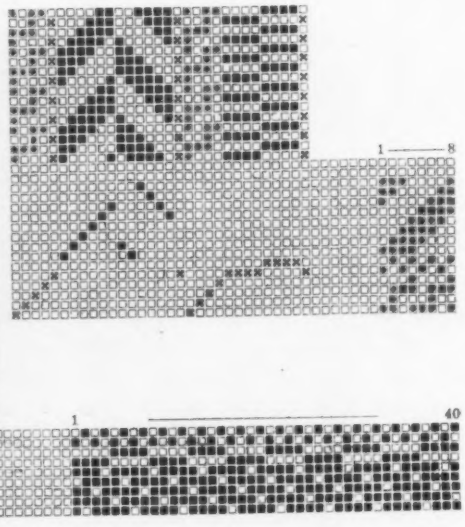


FIG 1593



40 picks, since this is the smallest number that will include an even number of each of the different weaves, 2, 8 and 15 picks respectively, necessitate at least 120 bars in

FIG. 1594

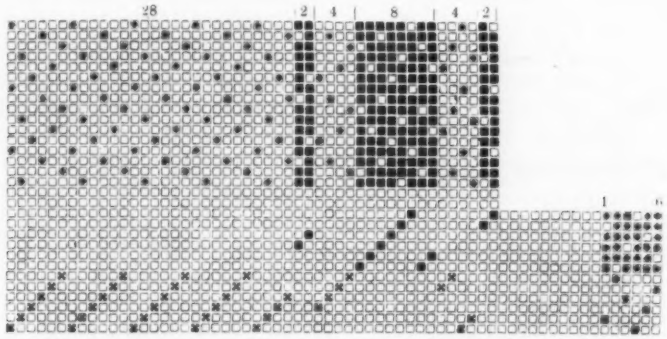


FIG. 1595

the two separate weaves, which have 5 and 8 picks respectively.

In selecting weaves for combination, care should be taken to have them of such sizes that an excessively long filling chain may not be necessary. In Fig. 1595 the sizes of the filling chain in order to include a whole number of repeats of each weave. If, however, a 16-pick weave is substituted for the one with 15 picks, the pattern can be woven with 16 bars on the chain and without affecting the appearance.

FIG. 1596

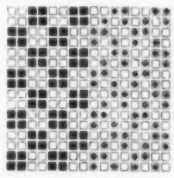


FIG. 1597

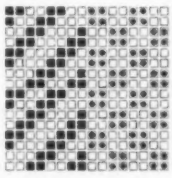
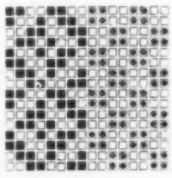


FIG. 1598



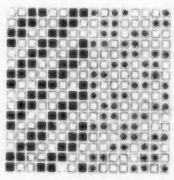


FIG. 1599

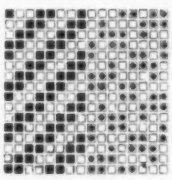


FIG. 1600

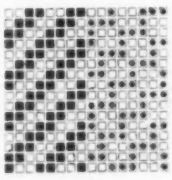


FIG. 1601

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

—÷—

EXPERIENCES IN A COTTON CARD ROOM

BY TUMBLER

(Continued from August.)

The first day that I was on the new job I just looked around the section to see how things were. I noticed that the lap machines were dirty and the combers had a lot of bad top combs and bad half laps on the speeders. There was a lot of roving run over. On Tuesday I began to work. I scoured the sliver lap machines, put in about 20 top combs and did other small jobs besides. At the end of the week I had all the top combs in good order and had put in several half laps. After I had been on the section for about six months I had all my machines in good order and began to have some spare time. Then I asked the overseer to show me how to draft a card and comber; they were the only machines I could not draft. He showed me how to do it and then I told him I could draft any machine in the carding room, but he said he did not believe it. He took me in the picker room with him and when we got there he told me to start from there and see how far I could go without making a mistake. I started and drafted every machine right except the combers. I got in the wrong gear and made my first mistake there. The overseer corrected me on the spot. I then drafted the speeders and took the twist per inch. I was just going to ask him to show me how to figure the production on speeders when the watchman came up and told him there was a stranger in the main entrance looking for work so he left me and went out.

One Friday afternoon the treasurer of the company came in with a young man. He took him through the room and explained the work to him. They stayed in the room some time looking around the combers. On the following Monday the same young man came in the room with the overseer. The overseer motioned to me to come to him, and then introduced me to the young man, who, he said, was superintendent of a small mill and wanted to get an idea of combers. After the overseer left us the man told me that the mill he was working for was about to get combers and he wanted to know about them before they got them in their mill. I told him I did not know all about the combers, but would show him all I knew. He smiled and said he would be satisfied if he could learn about half of what I knew, so we went to a sliver lap machine and I began to explain to him what the machine was for and what work it did. I also showed him how to draft one and figure out the production.

After working around a lap machine for a day he said he had a good idea of what it did and then we put our time around the combers. He asked me how long it would take him to learn the "ins and outs" of a comber and I told him there wasn't any need of his learning to fix, that all he needed was the idea of how a comber runs and how to draft, what work it does and how to take the production and percentage. He asked me many questions about the different parts on the combers. After he had been around combers for three weeks he said he understood the combers fairly well and told me that he would leave on Saturday for home He thanked me for my trouble in showing him all I could about combers and said that he would not forget me. He took my address and said if he ever needed a good second hand he would send for me. After he left I did not forget that I had more to learn as I wanted to know how to figure out the production on speeders. I did not want to ask the overseer as I thought he would think I wanted to know too much, so I took the address from one of the speeders and wrote to the builders, asking them if they would kindly send me a catalog explaining how to figure out the production. Three days after I had written I received

one of their books. It was a great help to me.

After I became able to figure out the production I began to think that, as I could draft all machines, take twist per inch and figure out the production, I was able to fill a position as second hand. I began to write to different mills asking them if they needed a second hand. Sometimes I would get an answer.

One Sunday night the overseer came to my home and asked me if I would go to work that night. He said that a pipe had burst in the slasher room on the floor above the card room and all the combers were wet. I told him yes I would go. When I got in the room the first thing I did was to take off all the laps from the combers and put them on the windows to dry. I then wiped the water off and covered them with canvas so if any more water fell on them they would not get rusty. I worked until 11.30 that night with the overseer and the second hand. On Monday morning I was in early in order to get a good start. The first thing I did was to put the comber tenders to work on their own combers. I showed them what to do, I made them pull all the pans and tins off the combers and wipe up with whiting the different parts that were wet, change all the rolls, then start the combers up without the laps on them and let them run for about one hour. I then put the laps on and started them up again. Monday night we had only four combers left for the next day and by Tuesday noon we had them all in running order. After we had the last comber going the overseer and superintendent came into the room. They looked around for a while and noticed that the speeders were all stopped waiting for roping. The superintendent gave orders to run the room overtime until we had all the empty bobbins full again. On Wednesday noon we started to work overtime. We worked through the noon hour and a half hour at night. The cards, combers and drawing frames were run overtime for about a month.

After I had my machines going well again I had plenty of spare time. I sampled cotton, figured out drafts, twist and other rules for changing on different kinds of work. I went in early in the morning and noon and studied arithmetic before starting time I did this for about a year and at the end of that time I was pretty good at figures. I could figure out the production on speeders. I had been writing to different mills applying for a second hand job and finally I got a letter from a mill in the next town, asking me to come up to see them. I asked out one afternoon and went to the mill and inquired for the carder. He took me to the office of the superintendent, who asked me a number of questions which I answered the best I could. The overseer took me around the room and I noticed that it was in a bad shape. After we went over the room he took me to his office where we talked things over. I asked him how much the job was paying and he told me. I did not think that was enough and told him so. He said that was all that the second hand that left was getting. I told him that the room was in a poor condition and he needed a good man in the room in order to get it where it belonged. I told him I would take the job for so much more per week that the other fellow was getting. He said he could not pay that much money for a second hand and did not intend to. We did not agree. But before I left he asked for my address as he said he would talk the matter over with the superintendent and see what he would say about it. The next morning I was working about 8.30 when I was called to the 'phone. When I got there I asked who was speaking and it was the overseer I had visited the day before. He told me to come and take the job at the money I asked, so I told him I would be there on the next Monday morning. I went back to work and after dinner I told the overseer I was getting through at the end of the week. He asked me why I wanted to leave, so I told him. He said he did not blame me if I could better myself. He then put a spare section hand with me and I taught him all I could about the work. On Saturday when I went to get my pay the overseer told me to look out for the trouble makers when I got to

my new job and told me to do my work the best I could.

Monday morning I went to the mill on an early car and found the overseer waiting for me. He took me to his office where I got my working clothes on and then sat down with him until the speed started up. After the help had all got in we went around the room. He explained the different kinds of work to me and we looked to see if all the help were at work. After that we went back to the office and he gave me orders. The first thing I was to do every morning was to go around the room and see if there was anyone missing, then report to him. I must then size the railway head and sliver lap machines, and the roping on the speeders. After I had done all the sizing I would walk around the room. The first few days I just looked around. I saw that the room was in bad shape and the help were doing just as they pleased. They did not oil their machines properly and did not attend to the work. I told my section hands that all that would have to stop. They replied that they had tried to stop it but the overseer did not back them up and they had no right to let any of the help go. I told the section hands to be very strict and if any of the help did not obey them to send them home and if any trouble came up I would stand for it. Then the section hands went around the room and told all the help what orders they had just received from the new second hand. They told me afterwards that some of the help had laughed, but the very ones that did so were laid off before the week was ended. After we had laid off about four of the help the others began to be careful about their work and in a short while we had little trouble with them.

My next move was to stop the help from making too much waste. Every machine tender would have about five cans of waste. I ordered a scale from the overseer and made the section hand weigh the waste. Anyone that made over 7 pounds per week would have to pay 10 cents for every pound of the excess. Inside of a month I had reduced the waste to one-half of what it was. About a month after I had been on the job the superintendent called the overseer to his office and showed him his report for eight weeks back and told him he had lost in production. The overseer did not know what to say, so the superintendent sent for me and asked me what the trouble was. He showed me the reports and said he would not hold me responsible for it because I had just come there, but he said he thought I could tell him what the trouble was.

(To be continued)

METALIZING YARN

From L'Industrie Textile

The process of metalizing yarn consists in coating the yarn with a solution containing a metallic powder and an adhesive liquid. Casein has been used, but the adhesion is not durable. Others have preferred gelatine which adheres to the yarn more firmly, but is open to the objection of being very hygroscopic, causing mould. Attempts have been made to protect the metalized yarn against the action of moisture by applying a transparent solution of celluloid or collodion, but this gives the yarn a lustrous appearance different from that of metal. Edmond Dhunnausen has found after repeated experiments that casein glue adheres firmly when the yarn has been previously treated with a mixture of gelatine and a powder insoluble in that material. The casein glue is loaded with the metallic powder to give the desired appearance. The yarn is passed through a bath consisting of

Gelatine	25 parts
Metallic powder	25 parts
Water	25 parts

After drying for about twenty minutes the yarn is passed through a bath made up as follows:

Caseine	15 parts
Borax	5 parts
Water	80 parts
Metallic powder	30 parts

After drying a second time very rapidly the yarn is passed through a second bath or in a bath of the same composition. The weight of the metallic powder used varies according to the specific gravity and the nature of the material. The effect can be varied by adding different colors to the last bath.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

A SUBSTITUTE FOR ANILINE BLACK

Editor Textile World Record:

We use a cheap grade of sheeting which we color in the piece with aniline black. Owing to war conditions there is a great shortage of aniline dye with a possibility that conditions may be worse later. Our requirements are not for a fast black, but for an ordinary cheap black. Is there anything else we could use in place of aniline? There must be something that does not require a complicated dyeing process. Aniline (2370).

Replying to this correspondent, my suggestion is to adopt the chrome-logwood process for his cotton sheeting, etc., until the dyestuff stringency relaxes. The process is simple and does not require the fitting up of any unusual apparatus other than that any cotton piece-goods dye house already has. Prepare a solution of logwood extract standing at 15° Tw. in sufficient quantity to run for a day's work, by dissolving solid extract or "letting down" ordinary 51° extract. For use in the dyeing machine the 15° liquor is let down to 3° Tw. Add 9 pounds of muriatic acid to each 150 gallons of this logwood liquor.

Enter the pieces cold and while running, gradually increase the temperature to the boil and keep boiling until a full blue black shade is obtained. Then take out and give a good rinse in an open washer with hot lime water, when a full blue-black will be fixed on the cloth. Afterwards wash in plain water, dry, and dress according to requirements. This black is the common black usually used in print-works for making salable the great amount of "back cloth" that constantly accumulates, and which would otherwise be quite useless. A similar type of logwood black is obtained by using 150 gallons of logwood liquor at 30° Tw., to which has been added 6 pounds of copper sulphate made into a solution, and also a little soda ash. The goods are run several times in a jig, then kept rolled for 4 or 5 hours to "smother," so that a full shade of black is developed, and then the goods are washed.

Beta-Naphthol.

IDENTIFICATION OF LOGWOOD COLORS

Editor Textile World Record:

Please inform me of a simple method of distinguishing yarns dyed with logwood black from those dyed with aniline or sulphur black.

Aniline (2367).

A detailed reply to this question in the form of an article entitled "The Identification of Logwood and Other Blacks" will be found in another part of this issue.

WEIGHTING SILK

Editor Textile World Record:

We have been under the impression that there is no way of increasing the weight of silk without a loss of strength, if not at the time of the actual dyeing, possibly several years afterwards. We have been advised that recent improvements made in the methods of tin weighting do not tend to cause this weakening. We are also under the impression that the same weighting results may be obtained by the use of nitrate of iron and gambier that are obtained with tin, and without any effect on the fabric. We would be pleased to learn your opinion of this.

Manufacturer (2247).

The weighting of silk in general is accomplished by two methods. In the case of blacks a treatment with tannin compounds and iron solutions is the usual method, whereas in the case of white colored goods the weighting is effected by treatments with a solution of stannic chloride and sodium phosphate, giving what is known as a so-called tin weighting. The methods of silk weighting depend on the fact that the silk fiber will absorb large quantities of these

compounds from solution. Not only is the weight of the fiber greatly increased, but the diameter of the fiber is much enlarged so that not only is the weight of the silk made greater but the actual quantity or bulk of the same is increased.

The most popular method at the present time for attaining these results is that of tin weighting, as this treatment can be applied to all classes and colors of silk materials and does not diminish the luster or softness of the fiber but in many cases increases these quantities very materially. The use of tin weighting has, however, led to certain defects in silk which are often the result of an imperfect knowledge of the proper conditions to be reached and the proper composition and purity of the substances employed in weighting. It has been found that the silk fiber is very sensitive to the action of sodium chloride solutions, as well as other similar salts. Red spots are liable to develop on silk which has come in contact with a solution of sodium chloride. This difficulty may result from very obscure causes such as drops of perspiration. It is also possible to have the same condition arise from impurities in the substances used in silk weighting or from imperfect fixing of the proper weighting materials. The effect of these substances being left in the silk is to cause a gradual rotting or weakening of the fiber. This may not be apparent for a considerable length of time or until the materials are subjected to washing or laundry operations.

In order to overcome these defects, attempts have been made to neutralize the activity of the substances producing them. It has been suggested that tin weighted silk be treated with solutions of such substances as thiourea, sulphocyanides and hydrosulphite-formaldehyde compounds. Since the probable cause of deterioration of the fiber has been found in the presence of sodium chloride and perhaps also in traces of copper, precautions have been taken by silk dyers to eliminate as completely as possible all traces of these substances, with the result that considerable improvement has been made in the strength. Meister states that silk heavily weighted with tin chloride and sodium phosphate may be rendered practically immune from the formation of spots and also from the liability to become tender on exposure to light by treatment with a preparation of ammonium thiocyanate, glycerine, boric acid and tannin. It is claimed that this process has been successfully employed for a number of years in a large European silk dye house.

Other investigators have claimed that while this or other similar processes of treatment reduce the liability to spontaneous decomposition of the silk, they do not in any way completely eliminate the danger and it is still the general experience that heavily weighted silk does not have anywhere near the wearing qualities of the pure silk. This is also due to another factor which is often overlooked. While there may be more or less chemical action of the weighting materials or impurities contained in them on the silk fiber, leading to its decomposition and consequent tendering, there is another more or less purely mechanical reason why weighted silk fails to have the strength and durability of pure fiber. If we bear in mind the fact that heavily weighted silk fiber is much increased in volume over the natural fiber, and that this increase is due to the deposition of metallic substances which are of a brittle nature, we can readily understand that such weighted fiber will be much more brittle and subject to abrasion in wear than the untreated silk. In the cases of very heavily weighted silk the fiber may be increased in size to more than twice its diameter. This coating of hard metallic substance will not only decrease the tensile strength of the fiber itself but also very materially lessen its resistance to wear.

This condition is perhaps more true in the case of tin weighted silk than in that of silk weighted chiefly with organic compounds such as tannic acid. Silk has the property of absorbing large quantities of tannic acid from solution and apparently it forms an intimate colloidal substance with the tannin which swells up the fiber, but which does not coat it with a rigid metallic substance. As it is the practice, however, to fix the tannin absorbed by the silk by further treat-

ment with a solution of an iron salt such as pyrolignite of iron or nitrate of iron, we will have the silk made more brittle the greater the proportion of iron salt deposited. Furthermore the process of weighting silk with tannin and iron is applicable only to black dyed silks or at least to silks which are to be dyed very heavy dark colors such as blues, browns and greys.

Whereas the weighting of silk with tin phosphate may be conducted in a careful and scientific manner so as to prevent as far as possible any formation in, or retention of chemicals which may cause a slow destructive action on the substance of the silk, we do not believe it possible to weight silk to any great extent by this method without radically decreasing the wearing qualities of the fabric. It is also probable that the same degree of weighting may be produced by the use of tannin compounds such as gambier and nitrate of iron without as much deterioration of the fiber, but as already stated, this latter process is limited with respect to the colors to be produced. The process of tin weighting of silk requires considerable skill and knowledge to be properly conducted and unless the silk dyer fully realizes all the conditions necessary to produce the best results and is thoroughly acquainted with those factors which may lead to a tendering of the fiber, it is likely he will get into trouble when he attempts to weight his silk to any great extent. The purity of the stannic chloride solution employed, as well as that of the sodium phosphate used, should be carefully looked into. The effect of using standing baths and their change in chemical nature must also be thoroughly understood and carefully watched. Otherwise compounds may be developed therein which may have very bad influence on the after history of the weighted silk. The problem is in many senses an intricate chemical one and the dyer should have the advice of a competent chemist who thoroughly understands the nature of the problem and the conditions to be avoided.

Parola.

STAINS ON KNIT GOODS

Editor Textile World Record:

We are enclosing a small sample of knit fabric showing a stain caused by muddy water being run into the kier by mistake after the goods had been boiled out with caustic soda. Is there any practical way to remove these mud stains?

Bleacher (2362).

The stains on the sample of knit goods can be removed by first steeping in a solution of soap and water for three or four hours. They are then put into the kier at the bottom along with the other goods that are being boiled out. Use this method if there are only a few pieces, as it will do them no harm in the boil, but they will have to be watched carefully in the chemic bath as they will not stand very much after a second boil with the full strength of caustic and ash. If, however, the stains appear on a number of pieces they should be put in a special boil. If they have gone through the chemic bath after boiling they should be thoroughly washed first and put back in the kier in which is also put a bleaching agent or soap, about 1 per cent. of the weight of the goods. Do not boil at a high pressure, but give them about four hours with the covers off. After boiling wash out the kier and give a very weak chemic bath, as it is in the chemic bath where most of the trouble occurs. In all cases where the goods are stained with dirty water or from the kier it is best to watch for them in the kier and not let them go into the chemic bath. Plait them on one side until all the stained goods are off the top and then make up a special boil, as described above. It is very essential that the kier be inspected before it is drawn off.

Alpha.

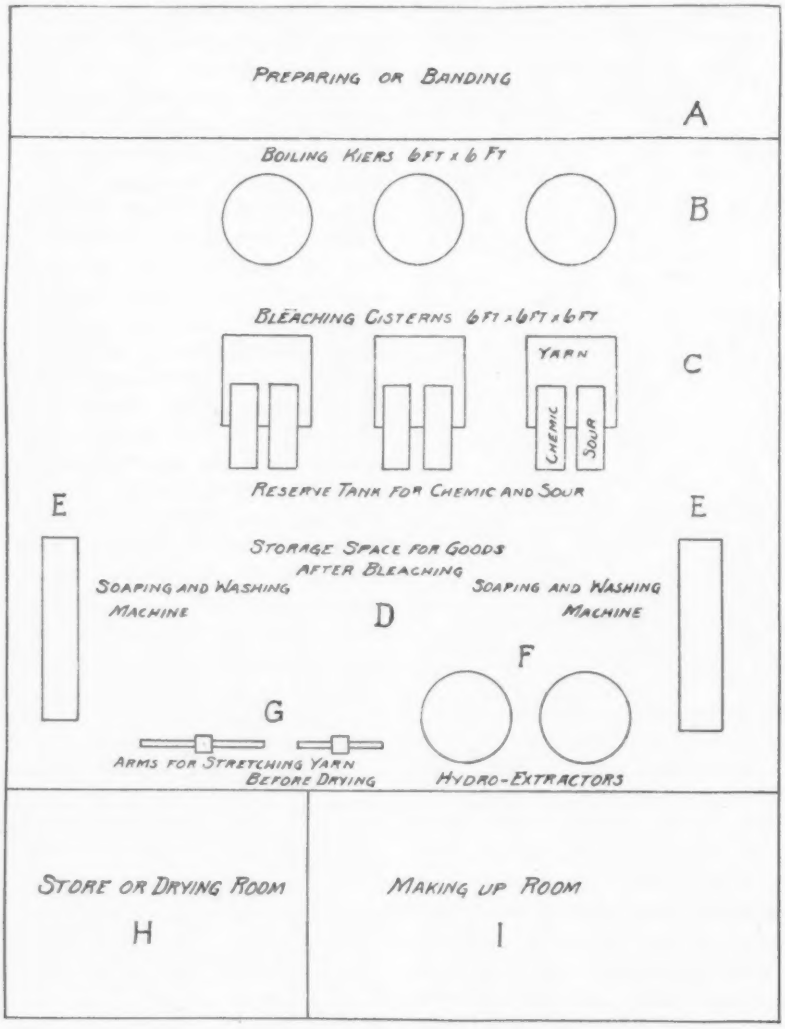
Upon examining the sample of knit goods I find that the stains are not mud stains but are kier stains which may have been caused in any one of several ways: By not having enough liquor in the kier; not having enough liquor at the start; leaky valves; or bad circulation. The best remedy for any of these is to wash well and sour the stock with muriatic acid at 1 1/2° Tw. for 3 or 4 hours. Then wash well, chemic and sour in the usual way. If the kier valves are made of iron and are well looked after, there need be no fear

of these stains being repeated. I would advise attaching a centrifugal pump to the circulating pipe and using a 1/4 per cent. solution of silicate of soda in addition to the caustic soda if the goods are not to be dyed, but if the goods are to be dyed the silicate

PLAN OF A BLEACHERY

Editor Textile World Record:

I have read with interest "Delco's" reply to Bleacher, but cannot agree with him as regards the plan of a bleachery for handling knitting yarns. Knitting yarns should be



PLAN OF A BLEACHERY

should be omitted. By using a centrifugal pump the time for boiling is reduced almost one-third. I have treated part of the sample for 4 hours in muriatic acid at 1 1/2° Tw. If this sample had not been dried previous to being treated in the acid bath it would have come out much clearer. Morocco.

handled but very little, as they are so soft the threads are easily broken. The illustration shows a plant in which most of the handling is done by machinery. A is the preparing room where the yarn is put up in chain form, say in 1/2 pound links. It is then run into the boiling kiers, B, where it

is boiled in a solution of caustic soda and soda ash from 6 to 10 hours, according to the quality of the yarn. It is then washed, while still in the kiers, and when clear of the caustic soda it is run into the bleaching tank, C. It is then chemicked for 3 to 4 hours, the liquor circulating over the yarn by means of a centrifugal pump from the tank underneath the tank, C. The yarn is then washed for one hour, and soured at 1° Tw. with muriatic acid for 1 1/2 hours, allowing the surplus liquor to drain into the tank underneath. Wash for 2 hours. The yarn is then taken out of tank, C, and put in tank, D. It is then ready for soaping, bluing and washing in machines, E. After it is hydro-extracted in machines, F, the yarn is ready to be stretched on the arms, G. The yarn is dried either by mechanical means or on wooden poles in room, H. Parma.

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BLEACHING KNIT GOODS

Editor Textile World Record:

I have read with interest "Hector's" reply to the question regarding the bleaching of knit goods and agree with him that the harshness may be due to too much alkali and a strong soap finish, but I do not agree with him as regards the tank process of boiling, bleaching and souring. As is well known, the goods get into a solid mass when boiling, and it is much better to have a second tank for the chemic and souring processes. I am personally acquainted with the man that took out a patent for the process "Hector" describes, but nothing has been done with it as there was so much trouble on account of the goods getting into a solid mass. There is also a risk that the goods will be tendered by the chemicals being left in the wood. I am speaking from experience as I have had 26 years practical experience with one of the largest home and export bleachers in Lancashire before coming to America.

With regards to the open kier, that is only a matter of opinion, as yarn or knit goods can be boiled in a closed kier with high or low pressure. Much time, steam and chemicals will be saved by circulating with a centrifugal pump. I quite agree with "Hector" that the methods in this country are not up to the English methods. I know of one bleachery in this country that is fitted up with the English system and is very successful, the work being first-class in every respect. Morocco.

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NUMBERING COTTON AND ARTIFICIAL SILK YARN

Editor Textile World Record:

We note the article in the June issue on "Numbering Artificial Silk." In connection with artificial silk we are desirous of procuring a short method for figuring the cost of material in knitted clothes made of artificial silk and cotton yarns. In order to do so we must obtain the quantity of each material used. We believe that the size of artificial silk is designated by deniers, while cotton yarn is designated by numbers which indicate the number of 840-yard lengths per pound. It seems to us that it is necessary to know the relation between deniers, yards and pounds. Any information you favor us with in reference to this subject will be appreciated. Oneida (2351).

The cotton number indicates the number of 840-yard hanks in one pound. The denier number indicates the weight in pounds of 4,442,112 yards, or 5,289 hanks of 840 yards each. Dividing 5,289 by either number (cotton or denier) gives the equivalent by the other system of numbering. Thus:

5289 ÷ deniers = Cotton No.
5289 ÷ cotton No. = Deniers

In calculating the relative proportions of cotton and artificial silk in a knit fabric the denier size of the silk should first be reduced to a cotton basis. Suppose a knitter is running 100 denier artificial silk with single 60s cotton yarn. Then:

5289 ÷ 100 (denier) = 52.89, Cotton No. of silk

The proportions of the two materials may then be readily calculated by taking any convenient length, say 60 cotton hanks as a basis:

60 (hanks) ÷ 60 (cotton No.) = 1 lb. cotton.
60 (hanks) ÷ 52.89 (cotton No.) = 1.13 artificial silk.

This shows a total of 2.13 lbs., 53 per cent. of artificial silk and 47 per cent. of cotton in the goods.

The same result is obtained regardless of the length taken as a basis. Take for illustration 52.89 cotton hanks. Then

52.89 (hanks) ÷ 52.89 (cotton No.) = 1 lb. artificial silk.
52.89 (hanks) ÷ 60 (cotton No.) = 0.88 lb. cotton.

Giving the same proportions, 53 per cent. of artificial silk and 47 per cent. of cotton. The cost of the material is readily determined from these proportions and the price per pound of each kind of yarn. Such calculations would be facilitated if so-called artificial silk were numbered by the cotton system. The denier method was probably adopted for numbering artificial silk because of the resemblance to natural silk and the fact that artificial silk is used largely as a substitute for the natural product. The term "artificial silk" is a misnomer, as the chemical constitution of the material is entirely different from that of natural silk. The so-called artificial silk consists of cellulose, the same as cotton, and thus, so far as the chemical constitution is concerned, should be numbered by the same system when spun into yarn. The principal reason why artificial silk yarn should be numbered by the cotton system is the increasing use of the material in combination with cotton yarn. Owing to the rather awkward ratio between the denier and cotton counts, it would be entirely reasonable for buyers of artificial silk yarn to specify the size by the cotton system and require that the yarn be so marked.

DEFECT IN ELASTIC WEBBING

Editor Textile World Record:

We are enclosing a sample of lisle web marked "C" and another sample marked "O." In a general way the construction of these two webs is the same, but the final result we think is in favor of style "C." The rubber and filling in both are about alike, but the face and gut threads in "C" are coarser than in "O." We wish you would advise us as to why the web marked "C" shows up the rib in a more prominent fashion and also why the web is firmer and looks more finished on the edges. This would entail a description as to the method of weaving both webs, but we would like to determine the exact method in which these two webs are arrived at and the reason why, while differing but little in the materials, they show so much of a difference when finished.

Elastic (2363).

Referring to lisle web samples received marked "C" and "O," "Elastic" is right in stating "that in a general way the construction of these webs is the same," but the little details of construction and weaving of lisle webs often make a very noticeable difference between various products. This difference is very apparent in the two samples submitted. While sample "C" is the more desirable product, sample "O" would probably cost as much to manufacture.

One indispensable factor in making lisle webs is the quality of filling used. It should be a high grade of combed and gassed yarn. The difference in the filling used in the two samples submitted is very noticeable. In sample "C" the filling is uniform in twist and free from fiber, while in sample "O" the filling lies across the web in ridges, which very clearly indicate its irregularity. The long loose fibers seen on the edges of the web and in its dissection would suggest that it is not a gassed yarn, or very poorly gassed at best. No amount of gassing after weaving will compensate for gassed yarn; as in the first place it is almost impossible to gas a white web without making it yellow; and while in black lisles there may not be the risk of shading, yet gassed yarns are indispensable to get the desired luster.

In weaving lisle webs, the prominence of the rib is one of the main features desired, so as to give character to the web, by showing up the high luster obtained from the combed and gassed filling, in contrast with the sunken warp. This result is best accomplished by weighting the face warp so as to cut down the warp lines and thus create a series of ridges. It will be noticed that this has been done effectively in sample "C" and that, while a heavier face warp has been used, which gives added firmness to the web; it has been weighted to such an extent that about 25 per cent. less length of warp has been used than in the same length of web in sample "C." This makes the filling rib stand up, the heavier gut thread assisting some.

The difference in this sunken feature is very apparent in the two samples, if a straight edge is placed across both samples in such a manner that the light will be seen showing up more clearly sample "C" than in sample "O." As before stated, this heavier weighted and somewhat coarser face warp not only gives prominence to the filling rib, but gives added firmness to the web.

The rough, coarse appearance of the edges on sample "O" is also largely owing to the grade of filling used, but it is further

aggravated by the use of six threads of warp between the first and second rubber, instead of four, which is all that is needed in this type of web. To make a fine, neat edge on such goods, it is advisable to set back the dent outside the edge rubber thread, and use a fine edge wire, in order that a fairly tight spring may be used on the filling, so as to make it hug the edge rubber as closely as possible without the reed dent cutting it out.

Samuel Brown.

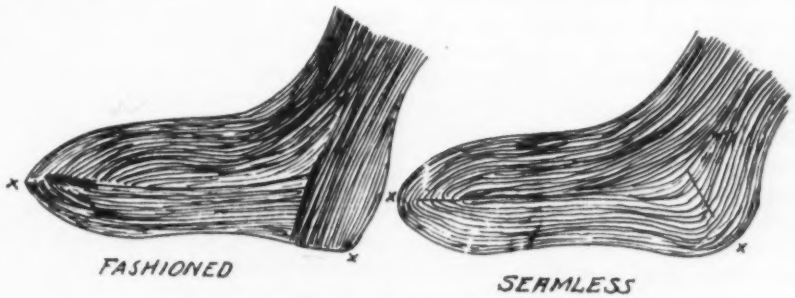
STANDARD LENGTH OF HOSIERY

Editor Textile World Record:

Please advise us the standard length of the foot in ladies' hose from size 8 to 10, and in men's half hose from size 9 1/2 to 11 1/2 inclusive. Also advise us if measuring from the top of the reinforcement yarn in the heel to the top of the toe is the correct way to measure hose.

Saxon (2350).

The standard length of the foot in both women's and men's hosiery is in inches, just as indicated by the size. For instance, size 8 1/2 should measure 8 1/2 inches and 9 1/2 should measure 9 1/2 inches. The manner of measuring is as follows:



METHOD OF MEASURING HOSIERY

On seamless goods measure from the point on a line with the continuation of the heel seam to the point on a line with the continuation of the toe seam, as shown in the illustration. On fashioned goods, measure from the end of the seam on the bottom of the heel to the top of the toe, as illustrated. The standard leg lengths of women's hose are as follows: No. 8, 26 in.; 8 1/2, 26 1/2 in.; 9, 27 in.; 9 1/2, 27 1/2 in.; 10, 28 in.

Fillmore.

ARTIFICIAL SILK WASTE

Editor Textile World Record:

What use is made of artificial silk waste? Can you give me some idea of its commercial value?

Teinture (2365).

Only a comparatively small quantity of artificial silk waste is produced as yet in the United States and no broad market has been established for the product. The case is somewhat different in Europe where a much larger quantity of the waste is made. We referred "Teinture's" inquiry to our French correspondent who in turn submitted it to M. Galland, Rosieres de Picardie, a spinner of wool and cotton, carded woolen, worsted and artificial silk yarn. M. Galland replies as follows:

Artificial silk waste is used by mixing with wool and cotton for the manufacture of yarn used in all kinds of fabrics, carpets, knit goods, woven cloths, felts, etc. There appears to be a great future for this branch of the business and mills have been established for the special purpose of making the mixtures of artificial silk and other textile fibers instead of relying on the supply of waste obtained from silk mills. I was the first to use artificial silk waste in this way and made a success of the work only after many experiments. In the beginning I bought the waste for 1.25 francs per kilogram (11.4 cents per lb.). Last year I paid 2 francs (18.2 cents per lb.) and the price has still further advanced. This waste takes the place of wool valued at 4.50 francs per kilogram (41 cents per lb.).

Galland.

Knitting Department

THE KNIT GOODS SITUATION

Since our last issue, the great European war has begun and is seriously affecting a great many lines of trade. Up to the present writing, it has not affected the knit underwear business of this country particularly, although in a general way, it must have some bearing on general conditions and the indications are that it will not have a tendency to help business.

Manufacturers and agents are taking no orders at this time, but this is not greatly different from other years, as August is usually a dull month in the primary market.

Initial spring business has all been placed and manufacturers are fairly busy, getting out samples for the use of jobbers' salesmen who start out about the first of September to solicit advance orders on spring lines.

Just what effect the war developments will have in the knit underwear end remains to be seen in the future, but it is believed, however, that retailers generally will put off the placing of orders on spring lines on account of the uncertainty that exists in the cotton market, considerable publicity having been given to the matter of a slump in the price which is likely to take place. When it is remembered that about two-thirds of the cotton crop is sent to Europe annually and that the war has closed down a great many of the manufacturing plants, it will be seen that this country is quite likely to have a surplus of the staple and it is apparent that low prices are apt to prevail in the domestic market. This will probably not take place until well into the month of October when the new crop will make its appearance, and there are chances that the effect may be lessened considerably by an increased demand of cotton to take the place of silk and wood fiber which are now imported in immense quantities. Again, there may be an opportunity for our domestic manufacturers to secure a portion of the South American business that has been taken care of principally by European countries in the past, and should this occur, it will greatly increase our consumption of cotton, as well as to employ our labor.

The war has had the opposite effect on the price of wool, than that of cotton. There is a certainty that foreign wools will be scarce and this has resulted in higher prices on the domestic article. It is believed, however, that most domestic manufacturers of wool underwear have their stocks of raw material on hand for the season's requirements and that there will be little, if any, change in the various lines of wool goods this season. All kinds of heavy weight underwear are being delivered promptly and there are a number of manufacturers frank enough to say they have fewer orders on their books than for several seasons past.

From the best information that we can obtain stocks in the hands of jobbers are quite heavy and they all report they are in a condition to take care of a large fall business without being obliged to call on the manufacturers to any very great extent for sometime. The conditions do not present a very rosy hue to those knit underwear manufacturers who are making only heavy weights.

The month just past has been a very warm one and this has had the effect of reducing the stocks in the hands of jobbers and retailers of light weight underwear to a very low point. The market has been cleaned up of all stock lots and seconds of every description.

Jobbers have bought combination suits very largely for spring delivery and some of the Western retailers who have been in the market recently state they have only combination suits on their lists to buy on their advance spring bills and that what little light weight merchandise has been carried over is almost entirely two-piece goods. Considerable business has been placed on women's combination suits that get to the retail for

25 cents a garment, and Bast & Sons of Schuylkill Haven, Pa., are showing a line made of 1x1 cloth, either with Torchon lace trimming at the knee or with cuffs at $1.90.

The United Underwear Co. of Boyerstown make a similar line, shaped at the sides at the same price.

J. W. North & Sons are showing a women's suit made on three piece pattern licensed by Hirsh of Philadelphia that buyers have taken very freely. This garment is made of plain stitch cloth, either lace trimmed or tight knee at $3.00. The three piece suit is growing in popularity and we have been advised by several retailers that customers who once take a three piece suit insist upon having the same style of garment again, owing to the comfort obtained from wearing a garment with extra width through the hips.

Julius Hirsh & Sons make an ingrain lisle tuck stitch suit, either Pandora or Nushape cuts at $4.00 which have proven to be a big selling line. Both Pandora and Nushape are three piece designs, the difference being that Pandora is made both back and front alike, while Nushape has a wide flap in the back with a seam running across the width of the garment.

J. C. Roulette & Sons of Hagerstown have also taken out a license to make three piece suits and at $3.50 are offering a fine gauge plain stitch lisle fabric which buyers are taking freely. This concern also offers a line of suits in regular cut at $3.25 made of 1x1 stitch cloth with high grade Torchon lace trimming at the knee. They also show a line of closed suits at $3.50 for which there has been considerable demand during the past season, as well as a line of mercerized lisle made on spring needle machines and trimmed with imported lace at the knee at $6.50.

There have been several lines of ladies' combination suits shown this season made with concealed tapes, but so far as we can learn, buyers have not placed orders on them to any great extent. Nor has there been as much demand for suits made on Swiss machines as in some former seasons. It seems that while the American trade will take the imported Swiss combination suits in fairly large volume, retailing at from $1.00 to $3.00 each, there seems to be a prejudice against domestic made garments made on the same class of machinery with ordinary sewed seams that may be retailed at 50 cents to $1.00.

HOSIERY

It was thought that at the first war talk, there would be an active scramble on the part of many buyers who had foreign hosiery on order to get the domestic manufacturers to fill the orders, but up to the present time, there has been very little activity along that line. There are those who now say that they have very little German hosiery on order for this country and that the domestic manufacturers already had their orders for the bulk of the season's requirements for most of the jobbers. There are, however, quite a number of retailers who usually place orders direct with Chemnitz manufacturers. They will be forced to supply their needs from the American makers.

In the face of this condition, the manufacturers of fashioned hosiery in Philadelphia have not advanced their prices, but on the contrary, some of the makers represented by Harrington & Waring have named lower prices on some of the numbers than were quoted last season. It is predicted by those most interested that it will be at least six months or a year before hosiery can be made in any volume in Germany and the trade that has heretofore depended on that country for their requirements are likely to be looking about for other countries to supply their needs. It is possible that the United States will be in a position to export hosiery in fairly large volume in the near future.

Our manufacturers are very much interested, of course, in the silk market at the present time and while the trade on pure silk may not be seriously affected, the artificial silks are quite likely to be materially advanced, owing to the fact that much of the material used to make the fibers are from Germany. There is a feeling among many buyers that they may not get all of the artificial silk goods for which they placed orders in the month of July.

Another difficulty that manufacturers have to contend with is the shortage of dyestuffs. It is claimed that about 75 per cent. of them come from Germany and that there is less than two months' supply in the country at the present time. While the American manufacturers have captured a large proportion of fashioned hosiery business of the country, they are still dependent on another class of manufacturers in Germany for part of their materials to work with. This is not regarded quite so serious a matter by many who claim our domestic chemists will soon find a solution of the difficulty by getting a substitute of the German chemicals used, although the probabilities are that the cost of dyeing will be greatly increased.

Reports from Chemnitz received just before the war started indicated that the hosiery district around Chemnitz was well supplied with business and that they expected a very successful season. While the manufacturers did not claim to have many American orders on their books, other markets bought freely.

SWEATERS

During the past three weeks, the sweater business has shown activity and it begins to look as if the knitted coat would enjoy great popularity for the coming fall and winter.

Men are buying freely of the heavy stitch garments with shawl collars, as well as light weight semibrushed garments made V neck. Women are taking the lighter weights in wool, artificial and real silks in a manner that indicates a good business with the better class of sweater manufacturers. One of the lines being sold largely is that made by J. & B. Allen of Philadelphia in wood fiber and a wide range of high colors, Kelly green, Copenhagen, rose, gold and bright cardinal at $60.00 per dozen.

The Marinette Knitting Co. are showing a line of double breasted silk plaited coats at $144 per dozen that appeal to the finer trade in the larger cities and at pleasure resorts.

The Franklin Knitting Co. are showing a line of full fashioned knit coats made in a range of plain colors, as well as in two tone. These are being taken with fashioned coat collar and with belts at $204 per dozen. They are being shown in fifty different combinations with turbans and sashes to match. It is surprising to learn of the quantity of these goods being retailed, coats at $30.00 to $35.00 with turbans at $5.00 and sashes at $10.00 each.

A great many brushed coats in high colors have been worn at the mountain resorts this past month. These are being taken in cerise, Kelly green and new blues principally, and are made with shawl collars and long Tango sashes to match.

Manufacturers of men's coats that retail at $2.50 to $3.00 all claim to have had a good business. This class of garments get to consumers who use them for warmth and in place of coats or overcoats. This part of the sweater business has become quite staple.

Boys' coats to retail at $1.00 to $2.00 have been in good demand all the season and manufacturers of this class of merchandise have been kept fairly busy. These are being bought mostly in worsted plaited with cotton merino back and taken largely with shawl collars in maroon, grey and navy blue.

A JERSEY WITH A BYRON COLLAR

BY CARDIGAN

The jersey with a byron collar which was originally worn exclusively by men but is now worn extensively by women and girls, is a very popular garment for fall wear. It is usually made in the same weights as other jerseys, both in cotton and worsted. The feature which appeals to the men is undoubtedly the fact that it can be worn with a collar and tie and gives a very dressy appearance, while with the women the feature lies in the fact that it can be worn under a light fall coat and give plenty of warmth; also in the fact that it can be worn with a low neck waist. This enables the wearer to have a low neck waist while indoors and the collar gives ample protection to the neck and throat when outdoors.

The accompanying illustrations show this garment from all angles along with the patterns for making. The back and front are

cut exactly alike except that the front is cut down seven inches from the neck opening. The collar can be made on any latch needle machine. The best collars, however, are made on an 8 cut machine with a 7-inch cylinder and a 36-gauge needle. When this style machine is used each collar is made 14 inches long and cut through the center lengthways. It is then folded so that it will measure 7 by 11 1/2. The short sides are seamed, thus making the collar complete. The facing is then sewed down the front opening. This facing should be in one piece and is cut 2 1/2 inches wide. It is folded and put on so as to finish 1 inch wide.

The sleeves are sewed in and the garment

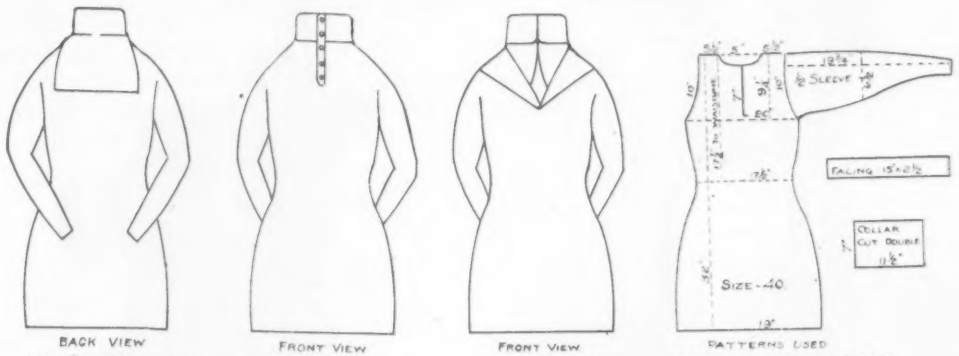


FIG. 1

is then sewed under the arms and down the sides. In putting the collar on the left side is turned back as shown at Fig. 2. The cuffs

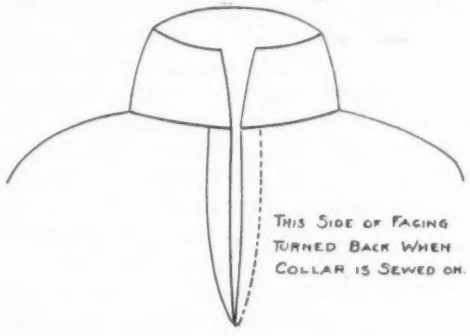


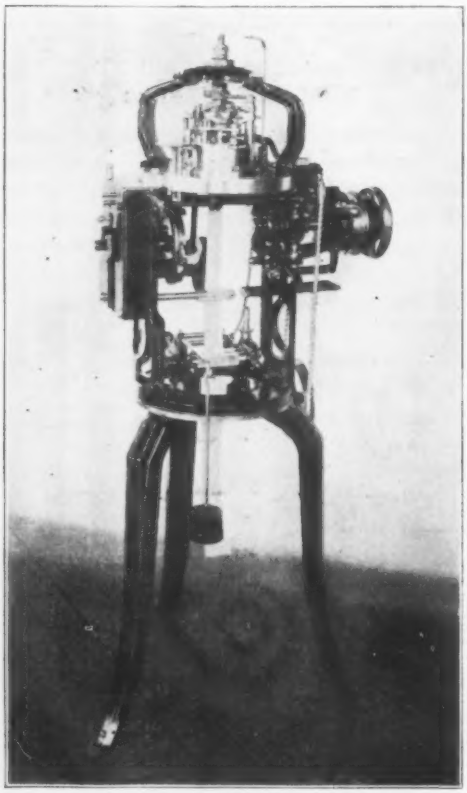
FIG. 2

which are made on an 8 cut machine with a 3 1/2-inch cylinder and a 36-gauge needle, are knit 6 inches long, and sewed on double. These garments are sometimes finished with buttons and buttonholes in the neck, but glove fasteners are much better. These fasteners are put on so that those on the left side will hold the facing down. The price of these garments is about the same as the ordinary jersey, with a small increase for labor.

IMPROVED DOGLESS ATTACHMENT FOR WILDMAN RIBBERS

The introduction many years ago of a dial into the circular knitting machine made it necessary to hold the dial in fixed relation with the cylinder, midway between the cylinder needles. Gearing was an obvious means of solving the problem, but its complexity and other disadvantages barred it from commercial use in ribbers. The practical solution was found in the use of dogs or lugs, with which every knitter on circular rib machinery is familiar. This important adjustment was dependent on the uncertain thickness of a piece of cloth. Realizing the need of improvement, the Wildman Mfg. Co. three years ago made a successful mechanical substitute, which has recently been still further improved. This improvement is shown in the cut herewith. The chief feature is the method of supporting and holding the dial entirely independent of the cam ring, so that the dial is mechanically connected to the cylinder, not only independent of the fabric itself, but also independent of play and wear

in the ring. This dogless attachment is built in the accurate and substantial manner that characterizes Wildman machinery. The central ring, which displaces the ordinary cross bar, is doweled so that no mistake or misplacement can occur after it is removed. The convenient lock screw adjustment is



THE IMPROVED DOGLESS ATTACHMENT FOR WILDMAN RIBBERS

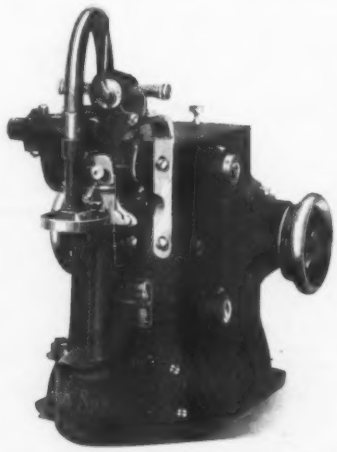
retained and the rigidity of the support is increased.

There are many other advantages, such as the dial-cap brace with screw adjustment, the positive latch opener and the positive control of the two-speed drive. The builders will be pleased to explain the operation of the new device to anyone interested.

The value of raw silk imported into Canada during the fiscal year ending March 31, 1914, amounted to $1,872,089, compared with $2,068,028 for the same period last year.

NEW MACHINE FOR SEAMING SELVAGE EDGE SWEATERS

A large amount of ingenuity and energy has been expended in trying to make a perfect machine for seaming full fashioned sweaters. This operation has heretofore been attended with considerable difficulty for the reason that the material is extremely elastic, thus making it very difficult to seam the selvage edges of the garment together and have the fabric lie out flat after the garment is finished. More objection, perhaps, has been aimed at the puckering of the fabric during the operation of seaming than at any other one point. Another valid objec-



A MACHINE FOR SEAMING SELVAGE EDGE SWEATERS

tion has been that at the finishing end of the seam the two pieces of fabric do not end evenly. This is perhaps largely due to the fact that the feeding device did not move the two pieces of fabric forward evenly. The trouble might also arise from the carelessness of the operator in holding one piece of material back more than the other. Another objection has been to the ridge formed by the seam.

All of these objections have been overcome in a new machine, Style 41200 B, manufactured by the Union Special Machine Co., 300 W. Kinzie St., Chicago, Ill., which is manufactured in the shape of what is technically known as a cup feed machine, the outer cup of which is power operated and

suspended from a point above the machine, leaving the necessary room in front of the machine for the handling of the material while it is being sewed.

This machine is the highest development of this particular type and is noted for its high speed. The design of the machine is excellent, the experts being able to avoid the numerous cams and gears usually found in this class of machines. The seam made upon the machine is perfectly flat and elastic and is made at a high rate of speed. We are quite sure that sweater manufacturers in this country are going to be interested in a machine to do this work in the best possible manner.

THREAD CUTTING DEVICE FOR HOSIERY

Editor Textile World Record:

I have read with interest the description of a machine for cutting threads on hosiery, published in the August issue. Perhaps your

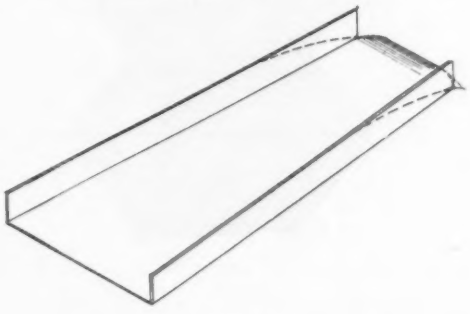


FIG. 1

readers would like to know of a simple arrangement that I have perfected and which gives good results. I took a piece of zinc about 14 inches long and 6 inches wide at one end, tapering down to 4 inches at the other, bent up to a shute shape, as shown at Fig. 1. Then the sides, 1 inch high, were tapered down at the narrow end as shown by the dotted lines. The end was then bent down slightly so as to pick up the ends more readily. I then cut two strips of iron 1/16 inch and 1 inch wide, cut a slit as fine as possible to within 1 inch of one end and fastened them to the sides as shown at Fig. 2. This was then screwed down to a projection which placed it across the girl's knees when sitting. The stockings were turned and examined by the knitter, which placed the ends on the outside. The cutter then laid the stockings across her knees and, without opening the dozen, the ends were very easily slipped along the shute into the slits and when all the ends were together they were picked up in a bunch with the left hand,

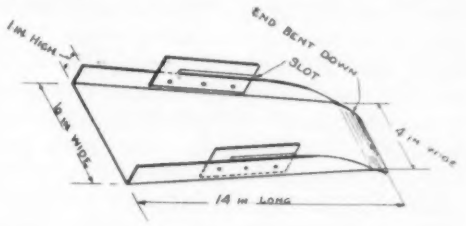


FIG. 2

pulled to one side and cut off by scissors in the right hand, which were run along the slit bar, cutting the ends close. The same thing was repeated on the other side. This is an exceedingly simple arrangement and there seems to be no limit to what a girl could do with one outfit. Hoosier.

A KNIT COLLAR FOR VESTS

The knit collar shown in the accompanying illustrations has recently been patented in this country and is described as follows: The general objects of the invention are to provide a knitted collar for garments of the character referred to which is knitted in a suitable manner so that the collar will have the proper set when turned down and yet fit snugly around the neck when turned up, the front ends of the collar being provided with a snap fastener so as to fit closely the front of the neck when turned up.

The fabric from which the collar is made is knit in the form of a strip which has alternate zones of tight and loose tension, the actual dimension of the strip between the points of tight tension being such that the strip cut into pieces on these lines of tight tension will produce collar pieces each sufficient to make a collar with the piece doubled along the line of loose tension. The cut edges of the double piece are next trimmed and then sewed to the edge of the neck opening of the garment. By this arrangement

the outer edge of the collar is extremely elastic, since it is formed by the zone of loose tension of the strip. When the collar is turned down it is held in this position by the outer or lower edge of the collar being under tension, whereby it is snugly held against the shoulders. By reason of the elasticity of the outer edge of the collar it can be readily stretched in being converted from a lay-down to a standing collar, or vice versa, and while in a standing position the elasticity or tension will maintain it snugly around the neck. A buttoning device may be employed at the front ends of the collar to close the gap at the throat and at the same time increase the tension throughout the edge of the collar to cause it to embrace the neck more tightly. The ribs of the fab-

FIG. 1

FIG. 2

ric extend vertically when the collar is upstanding, whereby the ribs contribute to support the collar in this position.

Fig. 1 is a front view of a garment with a collar applied in lay-down position; Fig. 2 is a similar view with the collar in standing position; Fig. 3 is a view of a folded, knitted collar piece before it is trimmed; Fig. 4 is a plan view of a portion of a knitted web or strip from which the collar pieces are cut.

A is the fabric from which the collars are made, being a knitted web or strip which has zones of loose and tight tension, the gradation of tension from one zone to the next being uniformly progressive. Fig. 4 shows the zones, a, b of tight tension alternating with the zones c, d of loose tension. As a result, the opposite edges of the knit web are not parallel, but symmetrically sinuous, and the ribs of the fabric are close together in the zones, a b, and more separated in the zones, c d, and consequently the knitted web is transversely elastic to a greater degree along the lines, c d, than along the lines, a b. The web is cut into collar pieces by being cut transversely on the lines, a b, and each piece is doubled longitudinally or along the axis of the zone, c d of maximum elasticity, this doubling producing the form shown in Fig. 3. The corners of the doubled collar piece are trimmed along the dotted curved lines so as to conform more effectively with

FIG. 4

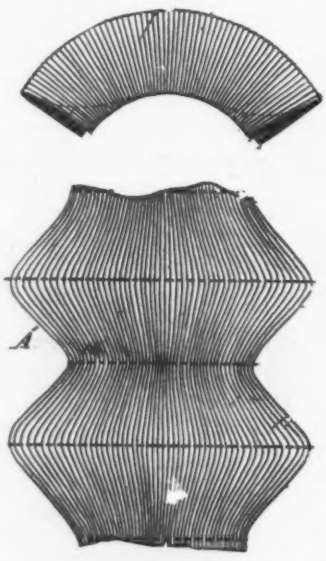


FIG. 3

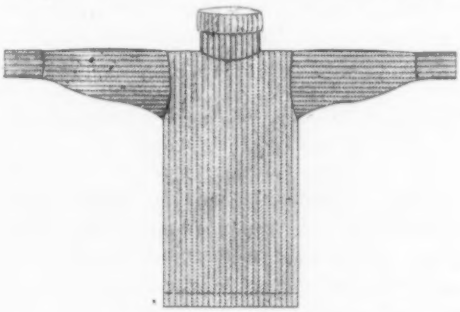
the edge of the neck opening of the garment, B. This trimmed edge of the folded collar piece is fastened to the garment, B, by one or more rows of stitching, the points of the collar piece, Fig. 3, forming the front ends of the finished collar, as shown in Figs. 1 and 2. With the collar fastened in this manner the doubled outer edge is formed by the fold on the line through the zone where the tension is of maximum looseness, and consequently when the collar is turned down, as shown in Fig. 1, the outer edge will be stretched, with the resultant effect that the tension will maintain the collar in this position and snugly fit the body of the wearer. The collar when turned up will naturally remain in standing position, as the ribs of the collar piece extend vertically, and be-

sides the outer marginal portion of the collar is somewhat under tension when in upstanding position, so that the collar will snugly fit the neck. The front ends of the collar may have a buttoning device to close the collar directly at the throat.

THE SEAMLESS JERSEY

BY CARDIGAN

I have been hearing from time to time much comment from traveling men and buyers of knit goods regarding the seamless jersey. There has been varied opinions passed in regard to this garment and most of them have been rather interesting. One of the buyers I talked with was featuring this garment and states that the seamless



A SEAMLESS JERSEY

garment will outlast the seamed one owing to the fact that there are not so many places where the garment can break. Another buyer to whom I talked said just the opposite and stated that he would not push this garment as it would not give the fit that was gained by the cut and sewed garment, and also that it has over half the seams that the cut and sewed garment has. He also stated that he could use the cut and sewed garment to better advantage for display purposes as it did not look so stiff and straight and had a more graceful and artistic appearance. I talked with two different salesmen who were trying to get their houses to handle this garment, and the only reason they could give for their choice was the fact that it was something new and they could use the seamless feature as a talking point.

Fig. 1 gives an idea as to how the seamless garment looks and shows where it is seamed. The body was made on a circular machine and knit 33 inches long. The collar and cuffs were made on a circular machine and I think the sleeves were made on a flat machine to fashion automatically, working similar to a ladies' full fashioned hosiery machine. The neck and armholes were cut in, the sleeves, collar and cuffs sewed in and the bottom hemmed.

The only advantage which I can see in this garment is that all parts are knit the exact size, thus making the percentage of waste very small. As to the weaving qualities and its advantage over the sewed garment, I would probably express the same opinion as the second buyer with whom I talked.

DUPLICATING A SWEATER FABRIC

Editor Textile World Record:

We are enclosing two swatches of sweater cloth. We wish to imitate as nearly as possible the blue swatch, but have not been able to do so. The grey swatch is made on a 14-inch machine with 156 needles with the head set as far ahead as possible with a long draw on the dial needles of about 1/8 inch, the cylinder needles raised as high as practical and the whole weight of the cloth and stitch being on the dials. This was made on a Snyder machine, especially cammed for sweater work.

If you can give us any information as to what kind of a machine the blue swatch was made on, or if it is possible to copy it on the machine we have described. You will note that the grey samples is not as firm between the wales as the blue one, nor does the stitch seem to lay out as wide on the wales. This was made of 2/6s cotton fed into the guide double, which would equal a No. 3 yarn and on the tuck feeds we used two ends of 2/20s worsted. Knitter (2352).

After examining the samples carefully I find that by using two ends of 1/5s cotton on both feeds, which I think the blue swatch is made of, you will be able to duplicate the fabric on a Snyder machine. I would advise drawing a slightly longer tuck stitch and tighten a little on the dial stitch. A very good duplicate of the sample could be made on the Leighton sweater machine by using four ends of 1/5s cotton. Hawick.

The total output of the principal silk drying establishments in Europe during 1913 was 54,999,848 pounds, which was 1,041,181 pounds, or 1.8 per cent. less than the yield of the same plants during 1912.

Dyeing, Bleaching, Finishing, Etc.

THE SHORTAGE IN DYESTUFFS

BY DR. LOUIS J. MATOS

The present dyestuff situation, due to the European war, presents one of the most remarkable problems that has ever confronted the textile industry and other trades dependent on the use of artificial colors. It points unerringly at the great dependence of our mills and factories on certain specialties that have not been developed far enough in this country to enable us to be, as it were, self contained in the face of a temporary adversity.

The slowly impending tie-up of the foreign artificial dyestuff supply is bringing the trade face to face with the alternatives of resorting to discarded dyeing processes requiring the use of obsolete dyes or of stopping dyeing altogether. The past few days has made the dyer realize the precarious position in which he is placed, first, by being to a remarkable degree unfamiliar with the natural dyewares and the practical processes for their application, and second, by the fact that, with the possible exception of logwood, stocks of many of these old time dyes are not as plentiful as some imagine. With the constant extension of the artificial color industry, the natural coloring matters have been cultivated to a less and less extent, so that in some instances, the yield is very small, and what is grown is in a few cases only large enough to supply the needs of pharmacy.

The sudden recourse to old dye recipes has also brought out the fact that the younger generation of dyers having access to these formulae have, with very few exceptions, no practical knowledge whatever as to how shades are built up with the older dyes. As a result, the application of them will not be so easy as one might suppose. Many of the older recipes seem easy to work, but the practical results are, in almost every case, far from those desired, where the dyer has not had practical experience with the particular recipe.

The writer has asked a number of practical dyers since the war began, how each would produce a pink on silk with safflower, and several replied that they did not know, while all the others admitted that they did not know what safflower was. Safflower may not be used extensively, but the lack of information regarding it illustrates a general condition.

The present stringency brings logwood prominently to the front. This wood, besides having been more or less used for blacks, will doubtless be pressed into service for various other shades, such as slates, grays and blues, for which it was long since abandoned in favor of the artificial blue dyes.

It is extremely difficult to make parallel columns of the old dyes and the artificial colors, showing just how the older dyes can now be brought into play, and what they can take the place of, for the reason that the artificial colors are so much in the majority, and permit of a much wider range of shades and intermixes.

Let us consider wool. We have, as a general run of shades, the following: Black; Dark Blue; Medium Blue; Browns; Yellows; Reds; Scarlets; Greens, and the subsidiary and intermediate shades such as slates, mode browns, olives, etc. Black is produced upon a chrome mordant with logwood, and shaded to meet the requirements with fustic. The following recipe will show the process.

For a blue-black, on 100 pounds of wool, mordant with

Bichromate of potash .....lbs. 2
Bluestone .....lbs. 2
Oil of vitriol .....pt. ½

Boil for 1 1/2 hours, and wash well, then enter the dye bath containing 12 1/2 pounds of 51° logwood extract.

For a jet-black, mordant as above, but dye in a bath with 10 pounds of 51° logwood extract and 2 pounds fustic extract.

For blue on 100 pounds of wool, mordant with

Alum .....lbs. 8
Argolds .....lbs. 4

Boil, wash well, and dye in a straight logwood bath at the boil.

If a violet tone is desired on the black, the addition of a small quantity of muriate of tin to the mordanting bath will swing the shade.

A general mordant for mode shades on wool is to use in varying proportions: Alum, or sulphate of alumina, tin crystals, crude argols (which is a crude cream of tartar, and which may be supplied from the California wine growing regions) according to shade.

Dye with: Logwood extract, Brazil wood (which also has various other names), fustic extract, quercitron bark extract, etc.

By increasing the proportion of Brazil wood, the production of various shades of brown is easy, and the cast or tone of the brown is further under control by regulating the fustic or quercitron, which are the yellow elements.

Bright reds bring us to consider cochineal which was completely disposed of long ago by the introduction of azo scarlets. Cochineal is dyed on wool previously mordanted with

Stannous chloride .....lbs. 2
Oxalic acid .....lbs. 3

or

Stannic Chloride .....lbs. 3
Oxalic acid .....lbs. 3½

A scarlet on 100 pounds of wool is dyed with cochineal, argols, stannic chloride, oxalic acid, and shaded to the yellow with a small quantity of flavine, a product obtained from quercitron bark. Cochineal scarlets and reds have the disadvantage of becoming purplish on contact with ammonia.

Pinks are made from cochineal, only less of the mordant is used and also less dye. Duller hued reds are made with cochineal on an alum mordant.

The problem of using real madder is interesting, but it is believed that it is practically out of the market as a dyeware, having been killed by the artificial product.

Green may be dyed upon a mordant of alum with fustic extract, indigo extract, a little logwood and a small quantity of soda.

Bronze shades are made with logwood and fustic, with sulphate of alumina and soda, boiling 1 to 1 1/2 hours.

The resurrected use of wood dyes revives at the same time the dearth of familiarity with the old time mordants, which, even more than the knowledge of the old dyes, constituted the major portion of the stock-in-trade, the real secret, so to speak, of the old time dyer. A mordant of considerable use to be used in the dye bath along with logwood and other wood colors, is as follows:

Alum .....parts 30
Binoxalate of potash 30
Bluestone 30
White vitriol (zinc sulphate) 10

parts 100

For 100 pounds of wool, from 2 to 10 per cent. of this mixture was used along with the dyes in the dye bath, boiling until the bath became exhausted, or until the proper shade was obtained.

Yellow was generally produced with either fustic or quercitron bark on a tin and alum, or only a tin mordant. Fustic alone is always dyed upon tin.

Cotton Dyeing with the Natural Colors

Blacks are dyed with logwood and chrome, or with the aid of bluestone.

Browns are to be made with cutch to which is added a small quantity of bluestone, and dyeing for 1 1/2 to 2 hours, then squeeze, and fix the color on the cotton by boiling in a bath containing bichromate of potash, and then wash. Logwood and other dyewoods are to be used for shading. Very dark browns are obtained by passing cutch dyeings through a bath containing a small quantity of an iron salt, such as copperas.

Yellows on cotton may be obtained by mordanting with alumina, and dyeing with quercitron or fustic. Pale shades, such as

straws, can be dyed by adding alum directly to the fustic bath. Turmeric, a long since discarded dyeware, may be dyed in a simple bath by slightly acidulating with oil of vitriol.

A shade of red resembling safranine and Turkey red shades may be obtained from barwood, a west African product, by dyeing upon a sumac or tannic acid and a stannic chloride mordant.

Pink on cotton may be obtained from safflower, by boiling directly with the color, and finally developing the shade by means of acetic acid added to the bath after all the color has been taken up. The question is, however, can safflower or carthamine paste be now purchased on the market?

Grays on cotton can be made by working the cotton in a sumac liquor for several hours, and then in a solution of "black iron liquor" (ferrous acetate) or copperas. The gray shades may be modified by adding logwood in small proportions. A further treatment with chrome and copper salts will also modify the shades.

Olives are obtained by mordanting with sumac and iron, then dye with fustic or quercitron bark, in the presence of alum, and finally saddening with a little logwood in the same bath.

Blues on cotton with natural colors are obtained with indigo, and the process is too well known among cotton dyers to need repetition here.

For certain lines of work, however, recourse may also be necessary to the old mineral dyes, such as chrome orange, prussian blue, etc., and a summary of them will constitute the subject of a separate article.

The manufacture of coal tar dyes in this country has been pretty thoroughly exploited during the past few weeks, and many expressions of opinion have found their way into the public or lay press regarding the situation.

Since the first artificial dye was discovered and developed in Great Britain, which country, by the way, still produces by far the greatest amount of coal tar, coupled with the peculiar educational system of Germany, the universities of which have catered to the production of investigators in organic chemistry, and serve as "feeders" to the color works, it is no wonder that the color industry has developed in those countries.

Again, the development of the mechanical side of dye production, a side that is absolutely different from the chemical investigation and research work necessary to discover dyes, calls for a class of chemical engineers, equally as well trained in their work of dye making as the research chemist is in his, and these men have resulted from the industrial conditions surrounding the industry.

When the demand arises that coal tar colors are to be made in this country, the universities will produce the men, and the machine shops and foundries will also arise to the occasion, and be ready to make the appliances, pots, digestors, autoclaves, presses, stills and other apparatus for use of which there does not now exist any demand here, but when it does, they will be made.

At present to undertake properly to equip a plant would be out of the question for the reason just stated, but with the apparatus, and the details of the process, it is believed that there are practical organic chemists now in this country who could guarantee that some dyes could be made and delivered.

The present opportunity is favorable for the gas engineers and others in charge of coal distilling industries to investigate the uses to which the waste tar from their plants are put, and to see if it would not be more productive if it was diverted into channels that might yield greater returns.

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At the recent meeting of the International Cotton Federation, held in Paris in June, it was announced that the increase in production of cotton in India had been from 250,000 to 600,000 bales.

The exports of knit goods from the Chemnitz district for the three months ending March, 1914, amounted to $1,851,480 as compared with $1,170,266 for the corresponding quarter of last year. The exports of knitting machinery and knitting machine needles for the same period amounted to $262,174 as compared with $239,338 last year.

IDENTIFICATION OF LOGWOOD AND OTHER BLACKS

BY BERWICK

The time honored test for logwood is to apply a drop of mineral acid; if a red spot appears, logwood is presumed to be present. Since logwood black has been regarded by many persons as possessing superior qualities over other blacks, the aniline dye manufacturers worked out combinations of dyestuffs, which when dyed either by the acid dyeing process or chrome process would give the same red coloration when acid was applied. For this reason the application of the acid test has lost its value.

The most direct test to determine the presence or absence of logwood upon fibers is as follows: Take a small clipping of material to be tested, place in a small test-tube and pour upon it three-quarters of an inch of a solution of tin crystals in muriatic acid, bring to a boil over a Bunsen burner, let boil for a few seconds, cool by holding the bottom of the test-tube in a stream of running water for several minutes, or immerse the bottom of the tube in a tumbler of ice water, then pour into the test-tube about three-quarters of an inch of ether, and close the top of the test-tube with the thumb and shake for a few minutes. It will be noticed that most of the red color passes into the ether. Now add water to the test-tube carefully until the ether layer rises to the open end of the tube. With a second clean test-tube at hand, transfer the ether to it, add water to fill 2 1/2 inches of the tube, and with the open end closed with the thumb, agitate for a few seconds. If logwood is present the water becomes red. This test should always be conducted parallel with a test carried out with a small clipping of the goods to be tested in diluted sulphuric acid. If logwood is present, the boiling acid is colored red, while the fabric is practically uncolored.

Aniline black does not respond to either of these tests. A clipping of cloth supposed to be dyed with aniline black is decolorized by boiling in a solution of hydrosulphite of soda, but upon washing and exposing to air, the color returns. This is a sharp distinction from sulphur blacks, which do not return when so treated.

Sulphur blacks are completely and permanently decolorized by gentle warming in a solution of bleaching powder or of sodium hypochlorite, which can be kept in a glass stoppered bottle ready for use. The solution of tin crystals is prepared as follows: 100 grams of tin crystals, 90 ccs muriatic acid (concentrated). Stir until all the tin crystals are dissolved, and then dilute with 500 ccs water. This is one of the most important reagents for testing the identity of dyestuffs.

A DYEING MACHINE

The improved dyeing machine recently patented is shown in the accompanying illustration and is described by the inventor as follows: The principal object of the present invention is to provide an improved dyeing apparatus, in which the goods rest upon spaced, horizontal, superimposed perforated shelves, through which is caused to circulate stock liquor or dye, first, upwardly in a continuous cycle and then downwardly in a continuous cycle, whereby the texture of the goods being dyed is caused to remain in unrumpled and unroughened condition and is uniformly and evenly impregnated with the dye.

A further object is to provide an apparatus, whereby when the goods have been dyed, the tub or tank containing the goods may be readily emptied of stock liquor or dye and clean water circulated upwards through the goods, for cleansing purposes, the dirty water being drained from the tank top.

Other and further objects of the present invention reside in the providing of a novel combination, arrangement and construction of parts of simple and inexpensive manufacture, whereby textile fabrics may be more efficiently and expeditiously dyed and washed than by present methods.

Fig. 1 is an elevation of the apparatus; Fig. 2 is a top or plan view, upon a reduced scale, of the dye tub or tank shown in Fig. 1; Fig. 3 is a view in vertical section taken; Fig. 4 is a fragmentary view in section,

drawn to an enlarged scale, and illustrating details of construction shown in Fig. 3; and Fig. 5 is a fragmentary view of one of the removable perforated plates shown in Figs. 2, 3 and 4.

The tub containing the goods to be dyed is divided into compartments of different sizes by means of a vertical partition. One compartment which is relatively large and is

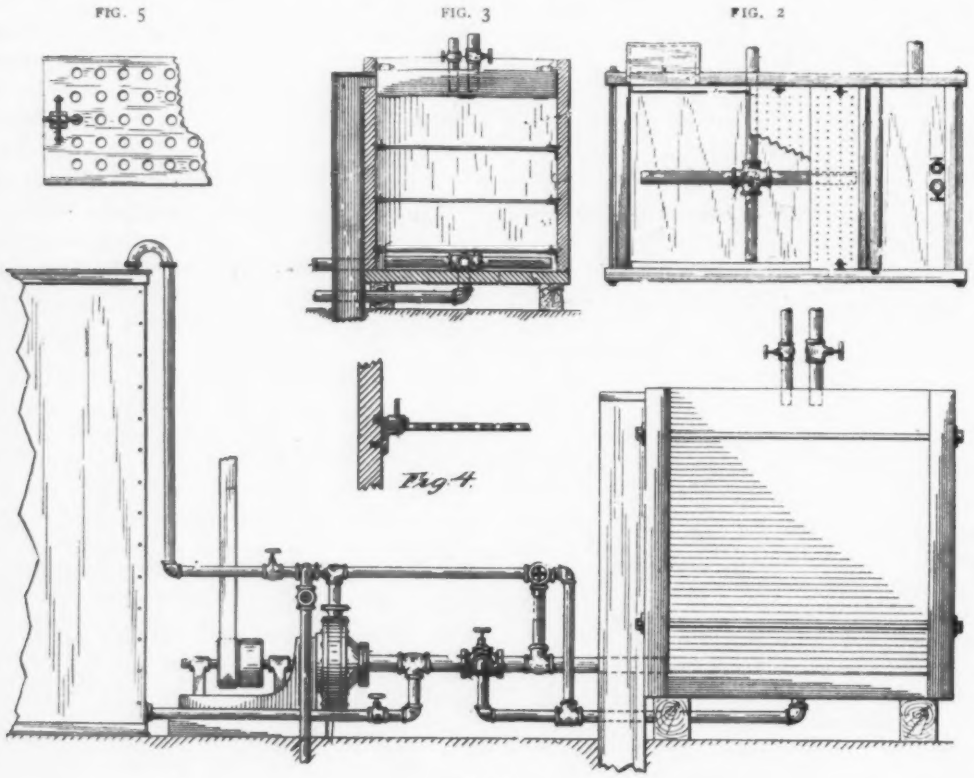

FIG. 1

a good receiving chamber is provided upon its side walls with spaced elongated, angle irons, which extend longitudinally and are adapted to receive a series of removable, perforated, metallic plates. These plates are comparatively narrow and arranged crossways of the compartement side by side in an abutting position, to form shelves, Fig. 2. Each plate is fastened at its opposite ends with temporary securing bolts, which are adjusted to apertures in the side walls of the tank. The plates may be readily fitted and secured in place in the compartment of the tank, and as readily removed therefrom. Hand grips, secured above the bolts may be conveniently used. Within the compartment of the tank, beneath the lowermost shelf and resting upon the bottom of the tank, is a union joint branching from which are a plurality of short pipe sections slotted to form a liquid distributer. The union joint connects with a pipe, which extends up through the bottom of the tank. The tank is provided with a waste water overflow conduit having communication as shown at Figs. 2 and 3, with the top of the compartment or chamber, which conduit may lead to a sewer connection or other desired point. This conduit is utilized when goods are being washed after the dyeing process, at which time a movable gate, shown in the illustrations, as having hinged relation with the top of the partition, is used.

FAULTS OF WOOL PIECE DYEING

BY G. SCHNEIDER

In the Oest. Wollen unn Lemen Industrie

In many cases woolens are better dyed in the piece than in the yarn. One factor is that the dyes are not subjected to the processes of weaving and other operations. There is, however, the drawback that the piece dyeing may be influenced by sizing and other treatment which the wool has undergone before weaving.

In the spinning of the wool sundry oils are used. They may be mineral, vegetable or animal fats and are used separately and also in all sorts of mixtures. Vegetable and animal fats are easily removed after spinning by means of alkali, but the removal of petroleum is difficult. It is much cheaper than the organic fats, but costs more in the long run. The only legitimate use of petroleum in a textile factory is for lubricating machinery, and then it may be conveyed into the goods from the bearings. This never happens if the bearings are properly looked after. Should a stain result on the goods from this cause, it should be treated as soon as it is noticed—and the sooner it is noticed the better—by soaking it with olive oil, which absorbs the petroleum and allows it to be removed by washing with soap and soda. It sometimes happens that these stains, especially if they result from petroleum dripping from overhead shafting, contain metallic dust. These are also removed with the stain, but it is easy for any dyer to understand what trouble they can give him if they remain.

Another difficulty arises from the use of old vegetable oils, such as rape, linseed and cotton seed oil. These oxidize and form resinous bodies which, once deposited on the fiber, are difficult to get rid of. When one of these resinous oils has been used together with petroleum, yellow stains are formed which cannot be easily removed and make light shades impossible.

If in getting rid of the spinning oil the soda and soap lye is too hot or too strong, the wool is attacked in places which come out darker than the rest in dyeing. Should this happen, the only remedy is to dye the whole piece black.

No soap must be allowed to remain in the goods. Any soap residues are decomposed in an acid bath; the fatty acid set free clings to the fiber and effectually hinders level mordanting or level dyeing. Cloudy dyeings result, and it costs more to rectify them than the material is worth. It is not worth much afterwards. To remove these soap residues there must be thorough rinsing and the water used in the first instance must be soft, or the soap residues will contain lime-soaps, which it is very difficult to rinse out. It is clear that soapy goods should be rinsed at once unless the soap used is neutral, or the alkali will affect the wool.

Turning now to carbonization: in order to prevent subsequent troubles in dyeing, the acid used must be kept at the strength required to neutralize any alkali in badly rinsed goods as well as to destroy the vegetable fiber. The excess of acid must be removed by rinsing thoroughly as soon as the carbonization is finished. Long contact with the wool enables the acid to act upon nearly as much as it does on vegetable fiber. After carbonizing, the goods must be kept separate from any which have not to undergo the process. If, for example, wet, uncarbonized goods are hung with wet carbonized goods over a rod, the former may absorb acid from the latter and will then show pale streaks when dyed. There is no remedy for this except dyeing the whole piece black.

Rust and copper stains may be caused by the goods coming into contact with iron or copper in centrifugals and other machines. Centrifugals should have basket work inner drums and contact with iron is not difficult to avoid. Iron stains cannot usually be removed and prevention is the only remedy. Very small stains, if not very bad, can be removed with oxalic acid. The difficulty with oxalic acid is that if the solution is too strong, the fiber is tendered, and if the solution is too weak, the stain merely spreads into a ring.

Dark ends generally originate in decatizing. To prevent them, the steam should be used at the lowest possible pressure and temperature, and for as short a time as will secure the desired effect. Further, the dis-

tribution of the steam must be uniform; it increases the affinity of the wool for dyes and any part that gets more steam than another will dye darker. Another possible way in which decatizing may lead to after-trouble is the danger of uneven distribution of any dirt or soap residues present in the goods. The moral of this is obvious. Another point is that the use of very wet steam for decatizing always causes cloudy dyeing.

Mould stains may, even if invisible beforehand, cause, defective dyeing. They are so easily avoided by proper storage and so extremely difficult to eradicate that it seems unnecessary to say much about them, especially as mouldy places soon go rotten. It may be mentioned, however, as having a certain amount of interest, that mould lessens the affinity of the fiber for dyes before destroying it.

Creases due to the pieces having been left piled up for a long time are a fertile source of uneven dyeing, because the dye tends to accumulate where there have been creases, the previous position of which is then marked with dark stripes. Here, again, prevention is the cure. If the goods must be left folded for any length of time they should be occasionally refolded, so that the same fold never stays long at the same place.

As regards the faults in the dyeing itself, the first place must be given to differences in the solubility of the dyes. Many of the acid dyes employed for wool do not dissolve in concentrated acid baths, and are precipitated in an insoluble form on the fiber. It is necessary that they should be dissolved in water separately before adding them to the dye bath.—Translated by the Dyer and Calico Printer.

The use of machinery in the hosiery trade takes its beginning from the invention of the stocking frame by the Rev. William Lee, Curate of Calverton, England, in the year 1589. Prior to this time, stockings were either hand knitted or cut out of cloth fabric and stitched. During the sixteenth century knitted stockings, especially of silk, were considered a much-prized possession.

DYEING VEGETABLE FIBERS

A process for dyeing cotton and other vegetable fibers, which has recently been patented in this country, is described by the inventor as follows: It has been discovered that cotton which has been dyed with sulphur colors can be aftertreated with certain amino compounds, and in such a manner that the produced results have many valuable commercial advantages over the untreated or original dyeings. This process, in general consists in treating cotton dyed with sulphur colors with certain amino compounds in the presence of an oxidizing agent. Among the amino compounds which we have employed for the production of these new and valuable results are: paraphenylenediamin; p-amido-p-oxydiphenylamin; paramidophenol; orthoamidophenol; homologues of the fore-mentioned, and the following condensation products: paraphenylene diamin and 1 mol. naphthol; paraphenylene diamin and 2 mols. naphthol; paraphenylene diamin and 1 mol. phenol; paraphenylene diamin and 2 mols. phenol; paraphenylene diamin and 1 or 2 mols. cresol; paraphenylene diamin 1 or 2 mols. metaphenylene or toluylenediamin. In order to produce varied results the above amino compounds may be used singly or in combination with each other.

One method of following the process is as follows: Cotton which has been dyed with 6 per cent. of sulphur color, such as cross dye black B. X. is worked in a bath containing 2 per cent. paraphenylenediamin, 20 parts of water, 3 per cent. acetic acid (50 per cent.), 1 per cent. bichromate of soda, for a few minutes in the cold and then gradually raised to 40 C. during about half an hour. The operation may also be conducted in the cold throughout or the temperature may be raised to boiling point. These proportions may be varied to meet special requirements.

This method of treatment produces results possessing decidedly different and more valuable properties than those of the original dyed cotton, among which are their increased intensity and beauty of shade and the improved fastness to light and milling.

LOGWOOD BLACK

BY BETA-NAPHTHOL

The dyeing of logwood upon warps is not done to any great extent at the present time as it has been replaced by several kinds of coal tar colors. The best method of obtaining a good fast jet black with logwood is by using the old process of dyeing by which the warps are steeped in sumac over night, using 20 pounds of sumac per 100 pounds of goods. In the morning run through a five compartment machine, with two compartments running with lime water, three compartments sumac water and copperas. This is used for the saddening process. The warps are then taken to another five compartment machine and given one hole of running lime water, washed in another compartment, then given three holes with logwood at a boil. The warps were then saddened and washed, then soaped and washed. This method gave a good fast black on logwood, but is rather expensive for the cheaper lines of work, especially when the call comes for a black which must not cost more than a cent to one and one-half cents for the cheap ginghams and flannelettes. The labor cost is also greater by this method and the beaming and hand dressing cost is more than it should be. There came a demand for logwood blacks that would dye direct, that would be more economical for dyestuff and labor, which would require less handling, cause less breakage, and thereby give a lower beaming cost. The result was the so-called ash black dyed with logwood extract, soda ash and bluestone, generally saddened with an iron salt such as copperas or acetate of iron and cleared with 1 per cent. of bichrome. By this method good blacks are obtained at a low price and very little handling. There are many formulas for this black, but the principle of dyeing is the same for all.

I have found that the following formula is a good one. To each 100 pounds of yarn take:

15 lbs. Logwood ext. 51°.
5 lbs. Fustic ext. 51°.
3 lbs. Cutch ext. 51°.
2½ lbs. soda ash.
3 lbs. bluestone.

Boil and add the soda ash slowly; give four runs; let smother between each run; and let the goods lie over night. In the morning run through an iron liquor and then chrome with 1 pound of bichrome per 100 pounds of yarn at 120° F., and wash. For the ordinary black the after treatment can be done away with and the blacks left over night and in the morning wash and soften. With very little practice the dyer can vary the shade to suit his requirements.

The formula for cotton warps can also be used for dyeing silk. There are hundreds of different formulas of logwood dyeing in the silk trade, but most dyers of silk use the dyeing process for weighting purposes as well as for coloring. Silks are usually dyed in a very long bath, from forty to one to sixty to one, and the baths are kept standing, whenever possible, in order to economize as much as possible. The following recipe is one which is not intended to load up with. Where loading is done the baths of iron and cutch are repeated alternately according to the weight desired:

For 40 pounds silk yarn: Wet out with 2 pailfuls of soap solution, wash well, and sink over night in a bath of nitrate of iron 40° solution and 3 pounds fustic extract at 90°. Work 30 minutes, wash well, give 24 pounds Tw. Raise, wash well with a one pail soap logwood extract at 51°, and turn for one hour. Wash and soften with olive oil or olive oil soap. The above will give a good black, but where more weight is wanted it is well to have a cutch bath and work the yarn in it, returning to the iron bath one or more times. Care must be taken to see that the silk yarn is properly degummed with boiling soap or else uneven results are obtained. These soap baths are always saved and used over again in the degumming, dyeing or finishing of the dyed silk yarns. Amazon.

Logwood black on cotton warps may be dyed by making up a liquor with

25 lbs. logwood extract 51°.
1½ lbs. quercitron extract.

The warps are given two ends at the boil,

squeezed and passed twice at 110° F., through a bath containing

4 lbs. bichromate of potash.
2 lbs. bluestone.

Afterwards give a run through the logwood and quercitron again, but only at 160° F. Wash. If a 3-compartment machine is available, each bath can be kept separate. Instead of reversing the warps through the logwood bath, have two such baths of logwood and keep them fresh with additions, making the operation continuous.

A one-bath dyeing method for warps is made up as follows:

5 to 6 lbs. extract cutch.
15 to 18 lbs. logwood extract 51°.
3 lbs. bluestone.
2 lbs. soda ash.

Boil all together, adding the soda ash last. While at the boil, give 4 ends, squeeze and let lay over night and in the morning give two ends in a hot chrome bath and wash.

A first class black upon skein silk with logwood is obtained according to the following method which is the exact process carried out in practice and on a large scale for the production of a full, deep, rich black. It should be understood that there are many ways in which logwood blacks may be built up on silk, and each skein dyer thinks that his own method is the only one worth considering. On the other hand, as black silk dyeing is an art, to be acquired only after many diligent trials and careful observation, it must not be said that this or any other dyeing process is of no value or is incorrect, if after only one trial defective results are obtained.

To dye a good black, proceed as follows: The skeins must be thoroughly boiled-off and stripped, that no gum remains, and then well washed to remove all traces of the soap used.

Pass the silk 3 times through a bath of nitrate of iron (so-called "copperas iron") at 15° Tw. and fix the iron by passing through a soap bath. Wash well and then dye blue with 6 per cent. of yellow prussiate of potash, calculated on the weight added to the silk by the iron. As each iron passage adds about 4 per cent. to the weight of the silk, 3 passes add about 12 per cent. Enter the silk at 85° F., give 8 to 10 turns, gradually increasing the temperature to 115° F., and add half as much muriatic acid as of the yellow prussiate. Continue increasing the temperature to 130° F., squeeze and wash.

A gambier bath being ready at 7° Tw. and heated to 125° F., enter the silk and work for 1 hour. Lift and enter the dye-bath prepared with

12% solid extract logwood.
6% solid extract fustic.
5½% copperas.
2½% acetate of copper.

Give 1/2 hour at 150° F., raise to 160° F., and finish the dyeing in a second dye bath containing

12% solid extract logwood.
10% soap.

Work at 160° F. for 3/4 to 1 hour. Finally brighten with the aid of pure olive oil and muriatic acid.

THE GERMAN COMMISSION ON THE FASTNESS OF DYES

From the Dyer and Calico Printer

(Continued from August)

3. One bath. No change or bleeding. Dyeing with 2 per cent. of Chloramine Yellow C, as with the Chrysophenine.

5. Three baths, fresh distilled water each time. No change or bleeding. Dyeing with 8 per cent. of Immedial Carbon B, as with Immedial Indone R (see above).

Fastness to Water of Dyed Wool

The sample is treated exactly like cotton, but soaked for twelve hours. The results were as follows:

1. One bath. The wool becomes paler or changed in shade and there is bleeding. Dyeing with 2 per cent. of Azo Yellow, 10 per cent. of Glauber's salt, and 10 per cent. of tartar preparation for one hour at the boil.

3. One bath. No change or bleeding. Dyed with 2 per cent. of Patent Blue A, as

in the last example of the use of that dye.

5. Three baths, fresh distilled water each time. No change in the wool and little or no bleeding. Dyeing with 7 per cent. of Palatine Chrome Black 6B, as in the last case.

As regards fastness to rubbing, the committee has, we think, wisely abandoned all idea of fixing any standards. The difficulty of doing this is at once evident if we consider the nature of the test employed. The forefinger was wrapped in undressed white calico, and rubbed sharply over the dyeing ten times in two opposite directions, keeping always to the same area, however, which had a length of four inches. Clearly, the force used, the time taken, and the number of folds wrapped round the finger are all factors in the result, and all three are practically incapable of standardization. The less the time, i. e., the more rapid the movement, and the heavier the pressure of the finger, the greater will be the severity of the test. The heat developed by friction will no doubt be yet another factor. As regards the finger covering, its elasticity will have a varying influence on the result, according to the thickness of the fabric between the skin of the finger and the dyeing, and the greater or less tightness of the wrapping. Finally there is yet another factor, the character of the calico. It is obvious that a fabric coarsely woven from hard spun yarn will act more powerfully than a soft delicate cotton tissue, and not a word is said as to the sort of fabric used, or even whether the finger coverings used were all made from the same piece. They should of course be so made, and a fresh finger stall should be used for each test.

Fastness of Dyed Cotton to Ironing

The dyeing is covered with a doubled thin white undressed cotton fabric damped with distilled water and ironed with an iron, so hot that with the same pressure it begins to singe a white wool felt. The ironing is kept up till the covering cloth is quite dry. The color of the ironed parts, while they are still warm, is then compared with that of the unironed parts, and the covering of both is examined for bleeding. The types established are as follows:

1. Color much altered. Bleeding occurs. Dyeing with 1.5 per cent. of Methylene Blue B in a 20-fold bath of distilled water and 2 per cent. of acetic acid. The cotton was previously mordanted with 6 per cent. tannin and 3 per cent. antimony salt. Dye 1 1/2 hours by the usual methods for basic dyes.

3. Color somewhat changed, but no bleeding. Dyed with 1 per cent. of Benzopurpurine 4B, as in the last case of the use of that dye.

5. No change, and no bleeding. Dyed with 1 per cent. of Chloramine Yellow C as in the last case.

Fastness of Dyed Wool to Ironing

The dyeing is pressed for 10 seconds with an iron so hot that with the same pressure it will just not singe a white wool felt.

1. Color much changed. On cooling the color returns only gradually or not at all. Dyed with 2 per cent. of Fuchsine S, 10 per cent. Glauber's salt crystals, and 10 per cent. of tartar preparation for one hour at the boil.

3. Color a good deal altered but soon resumed on cooling. Dyed with 2 per cent. Amaranth, 10 per cent. of Glauber's salt crystals, and 10 per cent. of tartar preparation, entering at 60° C., boiling up in 20 minutes, and boiling one hour.

5. No change of color. Dyeing with 2 per cent. of Tartrazine, 10 per cent. Glauber's salt, and 10 per cent. of tartar preparation for one hour at the boil.

Fastness of Dyed Cotton and Wool to Stoving

The sample mixed with its own weight of zephyr is soaked in a bath of 5 grammes of Marseilles soap per litre at the ordinary temperature, wrung, and exposed for 12 hours in a room filled with sulphurous acid by burning an excess of sulphur, rinsed in cold water, and dried. Effect on the cotton:

1. Cotton color changed. Bleeding. Dyeing with 1 per cent. of Diamond Fuchsine on a tannin-antimony mordant like Methylene Blue above.

3. Some change. No bleeding. Dyed with 1 per cent. of Columbia Black FF extra, like Benzopurpurine above.

5. No change and no bleeding. Dyed with 1 per cent. of Diamine Black BH, diazotized, and developed with beta naphthol, like Primuline above. Effect on the wool:

1. Considerable change of color but no bleeding, or very little. Dyed with 2 per cent. of Diamine Scarlet B, like Orange 2 above.

3. Slight change of color, and little or no bleeding. Dyeing with 2 per cent. Milling Red G, 10 per cent. Glauber's salt crystals, and 2 per cent. acetic acid, starting at 30° C., boiling up in from 20 to 30 minutes, and boiling gently one hour. Exhaust with sulphuric acid after 45 minutes' boiling.

(To be continued.)

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 98

BLUE ON WORSTED DRESS GOODS

Blue on 100 lbs. worsted dress goods. Prepare the dye bath with

3 ozs. 367 grs. Amazo Fast Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
105 grs. Amazo Fast Red 8 B.
14 grs. Amazo Fast Yellow 6 G.
15 lbs. Glauber's Salt.
2 lbs. Oil of Vitriol.

Enter at 120° F., bring to boil and boil one hour. Rinse.

The above colors are recommended for their excellent fastness.

Recipe No. 99

RED ON WORSTED DRESS GOODS

Red on 100 lbs. worsted dress goods. Prepare the dye bath with

7 ozs. 384 grs. Amazo Fast Pink.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
2 ozs. 384 grs. Amazo Fast Yellow 6 G.
203 grs. Amazo Fast Blue.
20 lbs. Glauber's Salt.
2½ lbs. Oil of Vitriol.

Enter at 120° F., bring to boil in 20 minutes and boil 3/4 to 1 hour.

The colors used to produce the above shade are noted for their extreme fastness to light and are specially recommended for this class of work.

Recipe No. 100

VIOLET ON WORSTED YARN

Alizarine Leveling Violet B R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Leveling Violet B R.
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

Alizarine Leveling Violet B R possesses very good fastness to light, alkali, stoving, carbonizing and steaming.

Recipe No. 101

GREEN ON WORSTED YARN

Oxychrome Dark Green 3 G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Oxychrome Dark Green 3 G.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
5 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter at 120° F., bring to a boil and dye at a boil for one hour. If color is not well exhausted after one hour add

2 lbs. Sulphuric Acid

and boil 15 minutes longer. Then add

2 lbs. Bichromate of Potash

and boil 1/2 hour longer. The bath should be allowed to cool down to 160° F. before the after-treatment with chrome is started.

Oxychrome Dark Green 3 G may also be applied by the two-bath process. Its fastness in general is very good.

Recipe No. 102

VIOLET ON WORSTED YARN

Alizarine Direct Violet E R on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Alizarine Direct Violet E R.
(Farbwerke Hoechst, 122 Hudson St., New York, N. Y.)
20 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter at 180° F. and dye at a boil for one hour.

Alizarine Direct Violet E R dyes level, is fast to light and alkali and will not crock.

Recipe No. 103

YELLOW ON WORSTED YARN

Chrome Fast Yellow A on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Chrome Fast Yellow A.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston, Mass.)
2 lbs. Acetic Acid.

Enter at 120° F., bring to a boil and boil for 45 minutes. If bath does not exhaust add more acetic acid or a small amount of sulphuric acid and boil a little longer. Then add

1 lb. Bichromate of Potash,
2 lbs. Tartar

and boil 15 minutes longer.

Chrome Fast Yellow A dyes very evenly and possesses good penetrating properties. It is fast to milling and light and leaves white silk unstained.

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Recipe No. 104

BLUE ON WORSTED YARN

Alizarine Uranole 2 B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Alizarine Uranole 2 B.
(The Bayer Co., 117 Hudson St., New York, N. Y.)
15 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Alizarine Uranole 2 B possesses very good fastness to light, alkali, washing, steaming and stoving and will stand a moderate milling.

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Recipe No. 105

BROWN ON COTTON YARN

Sulfur Brown C L 4 R on 100 lbs. cotton yarn. Prepare the dye bath with

9 lbs. Sulfur Brown C L 4 R.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
1½ lbs. Turkey Red Oil.
per 200 gals. liquor.
20 lbs. Sodium Sulphide.
60 lbs. Glauber's Salt (Crys.).
per 200 gals. liquor.
4 lbs. Soda Ash.
per 200 gals. liquor.

First boil up the bath with the necessary quantity of soda ash and sodium sulphide. Stir the dye together with the turkey red oil and a little hot water, and then add to the dye bath and allow to boil for a few minutes. Finally add the Glauber's salt and dye for about one hour at 200° F. After dyeing, wring and age for 1/2 hour before washing.

Sulfur Brown C L 4 R possesses very good fastness to light and weather.

Recipe No. 106

BLUE ON COTTON YARN

Oxamine Light Blue B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxamine Light Blue B.
(Badische & Co., 86 Federal St., Boston, Mass.)
20 lbs. Glauber's Salt.

The addition of soda ash is to be avoided.

Enter at 180° F. and dye at a boil for one hour.

Oxamine Light Blue B possesses properties common to the direct cotton colors in common.

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Recipe No. 107

VIOLET ON WORSTED YARN

Alizarine Leveling Violet B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Yellow Violet B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

Alizarine Leveling Violet B possesses very good fastness to light, alkalies, stoving, carbonizing and steaming.

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Recipe No. 108

RED ON WORSTED YARN

Anthra Rubine B on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Anthra Rubine B.
(Kalle & Co., 530 Canal St., New York, N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Anthra Rubine B is a level dyeing color possessing excellent fastness to light.

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Recipe No. 109

BLUE ON WORSTED YARN

Anthrazurine 3 B N on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Anthrazurine 3 B N.
(Kalle & Co., 530 Canal St., New York, N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Anthrazurine 3 B N is a level dyeing color possessing excellent fastness to light. It can be dyed on worsted piece goods containing silk in an acetic acid bath, leaving the silk unstained.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Knitting Machine. Talleres de Construcciones Mecanicas Nam, de N. Agurti Maura, Calle Cortes, 476, Barcelona, Spain. A hand knitting machine embodying a number of improvements.

Roller Cleaner. G. Chisnall, Farnworth, England. An apparatus for cleaning the lower rolls of drawing machines, winders and roving machines.

Loose Reed Device. Harling & Todd, Burnley, England. An attachment for locking and unlocking reeds on looms during the weaving process.

Picker for Cotton Yarn Waste. Oscar Schimmel & Co., Chemnitz, Germany. An improved machine for picking cotton yarn waste. A large production and thorough picking of the yarn waste are among the advantages claimed.

Braid Machine for Open Work. Paul Weppler & Co., Barmen, Germany. A braiding machine for producing open work effects in braids.

Jacquard Cards for Lace. Maschinenfabrik Kappel, Chemnitz-Kappel, Germany. An improved device for producing perfect jacquard cards for lace machines.

Doffing Machine for Cap Spinning Frames. Hall & Stells, Ltd., Keighley, England. A doffing machine for cap frames embodying a number of improvements.

Woolen Condenser. The Redshaw Lister Woolen Machinery Co., Heckmondwike, England. An improved apron condenser for finisher cards. The tension on the strap is kept uniform. An improved method of drying is used and it is said the condenser is capable of a very large production of excellent work.

Treating Silk. Klara Vowe, Elberfeld, Germany. A process of treating silk with flaxseed oil in order to increase its durability during the process of weaving.

Mixing Cotton. Max Schueller, Kunnersdorf, Germany. A machine for mixing different grades of cotton or other textile materials.

Dampening Yarn in the Loom. G. W. Hargreaves, Blackburn, England. An attachment to the loom for moistening the warp during weaving.

Yarn Drying. Hubert Winkler, Moscow, Russia. An improved machine for drying yarn in the skein, embodying a number of improvements for increasing the production and keeping the yarn in good condition.

Wool Scouring Machine. Societe A. Thibeau & Co., Tourcoing, France. An improved machine for scouring wool, the material being automatically carried from one end of the bowl to the other.

Mercerizing Machine. Paul Hahn, Niederlahnstein, Germany. An improved machine for mercerizing yarn in the skein.

Cloth Napping Machine. Tomlinsons Ltd., Rochdale, England. An improved machine for napping flannelette and other cotton fabrics.

Narrow Fabric Loom. D. W. Phipp, Long Eaton, England. A vertical loom for weaving narrow fabrics, embodying a number of valuable improvements.

Loom Tension. M. Hodgson, Colne, England. An improved friction device for warp beams. It is capable of fine adjustment and is automatic in action, the weight being reduced as the warp is unwound from the beam.

THE PARKS & WOOLSON NEW MODEL STEAM FINISHING MACHINE

The illustrations, Figs. 1 and 2, show an improved steam finishing machine built by the Parks & Woolson Machine Co. of Springfield, Vt. They still build their regular open machine. The new model is designed to meet the demand of mills who wish to run a steam finishing machine without building a separate room for it. The cylinder covers suggested by a large user and worked out and adapted by the builders have made this machine so it can be used in any room in the mill, which is often a considerable advantage. The covers completely close in the cylinders during steaming. The steam is carried off through openings at the right hand ends. One of them is clearly shown in the illustration. Any tinsmith can make the connections to a rotary exhauster.

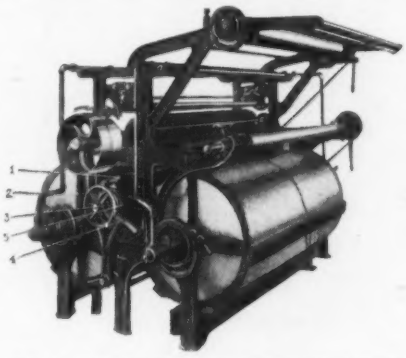


FIG. 1. LEFT FRONT VIEW SHOWING CYLINDER COVERS CLOSED

The exhauster may be used solely for such duty or for this and other service.

The front cylinder is shown in its closed position at Fig. 1; and open at Fig. 2. To open, merely pull the chain lying on the cover. The cover consists of a half circle of galvanized iron and rotates inside of a similar half circle forming the pan until the back edge of cover and front edge of pan are even. This condition is shown at Fig. 2. The counter weight holds it closed or open and it is nicely balanced so as to operate freely. To close, pull up on the chain and push the cover backwards. The machine lasts longer when the escaping vapor is carried off. Better and more rapid work can be done in a clear atmosphere about the machine. Moreover the steaming machine can be located anywhere that wet goods are handled without considering the question of ventilation. This steam finishing machine has been kept strictly up to date and is extensively used for lustering. The large majority of the face finishing mills in this country are running them. The company have as many as fifteen in operation in one mill. This machine is subject to the hardest

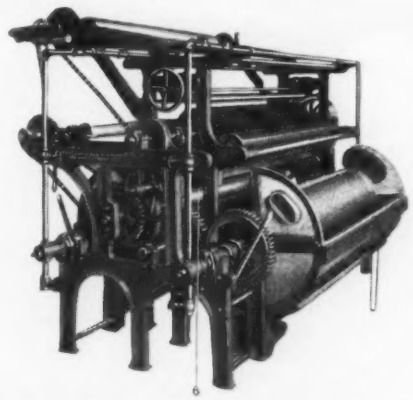


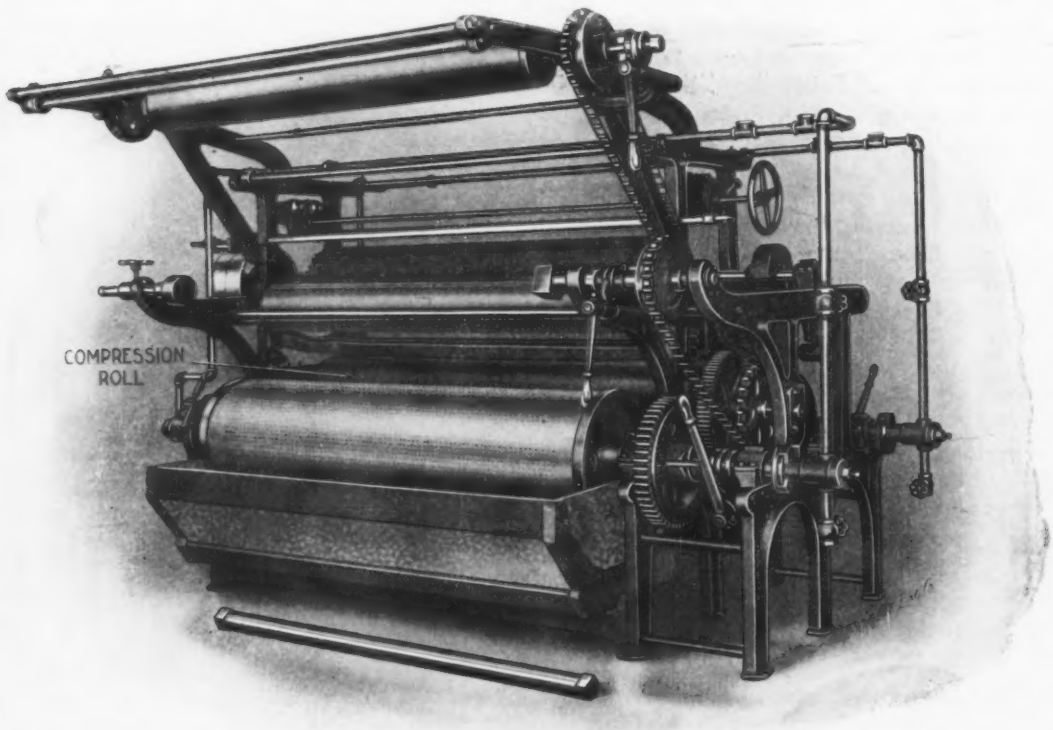
FIG. 2. RIGHT BACK VIEW SHOWING CYLINDER COVERS OPENED

conditions and must be built to withstand steam, hot and cold water and rough usage. It is so designed and constructed that it is giving general satisfaction, proving efficient, convenient and economical in its operation. The steamer is regularly equipped with one brush but can be equipped with two when extra brushing is desired.

A compression roll, 6, shown at Fig. 2, is a new and popular feature. It is built to order only, but a large number of the machines are now being ordered with this equipment. The operation of the roll is as follows: When the leader has been wrapped around the cylinder preparatory to winding on the pieces to be steamed, the compression roll, 6, is brought down against the cylinder by turning the hand wheel, 2. This rotates the pinion, 3, meshing in the segment gear, 4, that is mounted on the shaft below. This shaft carries the compression roll on radius arms so it can be swung in either direction against front or back cyl-

inder. By means of adjustable friction clamps exactly like those on the cylinders and loading drum and plainly shown in left view, any required pressure can be brought to bear on the winding cloth. The clamps are operated by the handle, 1.

A circular entitled "A Treatise on Steam Lustering Face Finished Goods," including directions for operating the machine and also much valuable material on the process of steam finishing is sent free by the Parks & Woolson Machine Co. builders, Springfield, Vt. This circular should be in the hands of the overseer of every mill making face finished goods.



THE PARKS & WOOLSON STEAM FINISHING MACHINE WITH COMPRESSION OR CRAB ROLLS

The value of raw cotton imported into Canada during the fiscal year ending March 31, 1914, amounted to $9,752,437, compared with $8,735,191 for the same period last year and $7,932,467 for the year previous.

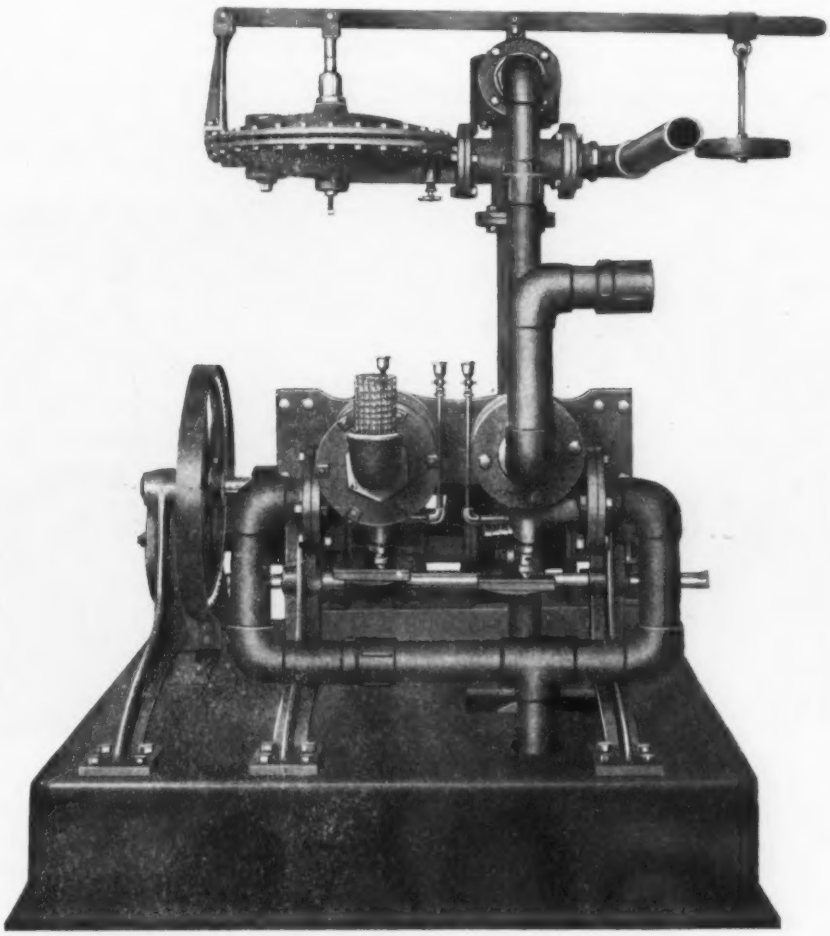
A NEW AUTOMATIC GAS SYSTEM FOR CLOTH SINGEING MACHINES

The usual method of burning gas in a cloth singeing machine is to apply it through a slotted burner, the gas and air being conducted to the burner by separate pipes. Each pipe is provided with a stop-cock or valve, by the manipulation of which the operator effects the mixture of gas and air and endeavors to obtain the color or character of flame desired. No matter how skilled the operator, it is impossible for him to get the same mixture on all of the burners of a singer; and also difficult to maintain the same mixture or flame on any one burner for a considerable time, as slight changes in pressure of either air or gas may alter the mixture as much as 15 to 25 per cent. Usually a change of 25 per cent. is perceptible, but frequently it cannot be detected by the eye. The burners which are

commonly used are not suited for handling such mixtures or air and gas as are most efficient and especially suited for burning the nap from cotton cloth. The most efficient mixture for this work will not stay ignited in a slotted burner unless turned so low as to be almost useless.

there is little oxygen available for consumption of the charred nap.

The Kemp automatic gas system, manufactured by the C. M. Kemp Mfg. Co., 415 Oliver St., Baltimore, Md., is an apparatus which automatically combines city gas, either manufactured or natural, with air, in



THE KEMP AUTOMATIC GAS SYSTEM FOR CLOTH SINGEING MACHINES

With the average installation of cloth singeing machines, the gas mixture is so rich as to require considerable outside or atmospheric air to support combustion. As a result the flame chars the nap and as the oxygen in the surrounding air is required to support combustion of the carbon in the gas,

proper proportions to produce a flame which is almost self-sustaining, requiring little atmospheric air for complete combustion. This gas and air mixture is automatically produced in the exact amount to supply the current demand and is maintained at a uniform pressure. With the spe-

cially constructed burners supplied by The Kemp Company, this thin mixture is applied to the surface of the cloth with little blast, making a soft flame, rapidly and uniformly consuming the nap, without penetrating or injuring the fabric. When desired it can be passed through the burner under heavy pressure impinging against the cloth with considerable force, singeing uniformly and rapidly.

One of the advantages of this method of application of the gas is the facility and ease with which flame temperature is controlled. It is possible to increase the speed of the singeing machine to get a greatly increased output at a considerable reduction in the gas consumption. The accompanying illustration is a back view of the mixing appaartus. The Kemp Company furnish upon request a blue print of their singeing burner, which is so constructed that the width of the flame on the several burners of a singeing machine can be changed in unison to suit the width of the cloth being singed, by the movement of one lever. This is done without affecting the character of the service. They invite correspondence and inquiries from all cloth finishers. Their plan of operation is to investigate conditions, guarantee to obtain definite results in the way of increased out-put and in gas saving, and furnish their equipment on approval. They state it is not unusual for them to double the out-put of a singeing machine and improve the quality of the product.

POWER TRANSMISSION FOR A WOOLEN MILL

One of the most flexible layouts for the mechanical transmission of power and one that insures sufficient energy throughout the factory during low water periods, during times when electric current is not available, or when for some reason or another steam plant is out of service is that of the Mishawaka Woolen Mfg. Company, which is shown in the accompanying illustrations. This transmission equipment was designed by C. R. Trowbridge, of the Dodge Mfg. Co., Mishawaka, Wis. Fig. 1 shows a general view of the engine room. The jackshaft which runs the entire length of the room is continued to the south about 200 feet and forms the main drive for part of the mill. At the extreme right of this jackshaft, just visible in the picture, is located a 250 h. p. vertical waterwheel driven by the St. Joseph River, water being carried in a concrete

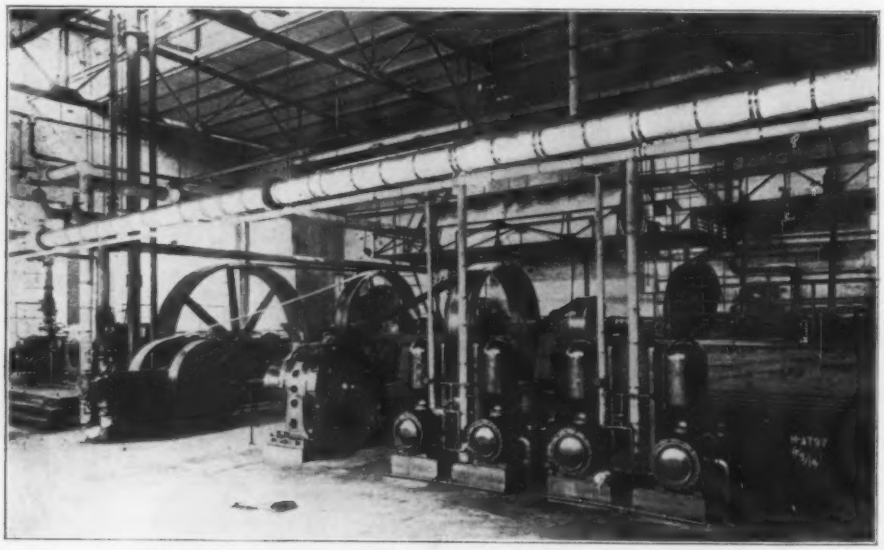


FIG. 1. A GENERAL VIEW OF THE ENGINE ROOM AT THE MISHAWAKA WOOLEN MFG. CO.

flume underneath the engine room floor.

The rope drive Dodge system, shown leading from the jackshaft through the rear wheel runs over into the rubber mill and connects with the main lineshaft, which is driven by three rubber wheels at the extreme north end. This shaft is mounted on a quill and can be thrown in and out by means of a large 40-inch cut-off coupling.

Further along the shaft is a large pulley, driven by a 200 h. p. motor shown in the foreground. This driving pulley is also mounted on a quill and can be operated by means of a 40-inch Dodge cut-off coupling. On the extreme north end of the jackshaft is another large pulley mounted on a quill equipped with a 40-inch Dodge cut-off coupling and driven by a 200 h. p. ball engine.

The pumps in the foreground of the photograph are driven by countershaft which is also driven by a belt from the main jackshaft. This pulley is also mounted on a quill and can be operated by a Dodge clutch. It is possible to feed power into the jackshaft by any one or all of the above mentioned units and it is also possible to feed back from the waterwheel in the rubber mill by means of Dodge rope drives into this jackshaft and operated at the mill line. When there is excess of this power the 200 h. p. motor is driven instead of using a prime mover and becomes a generator, feeding back in the woolen mill. This motor acts as a governor on the waterwheel and prevents over-speeding.

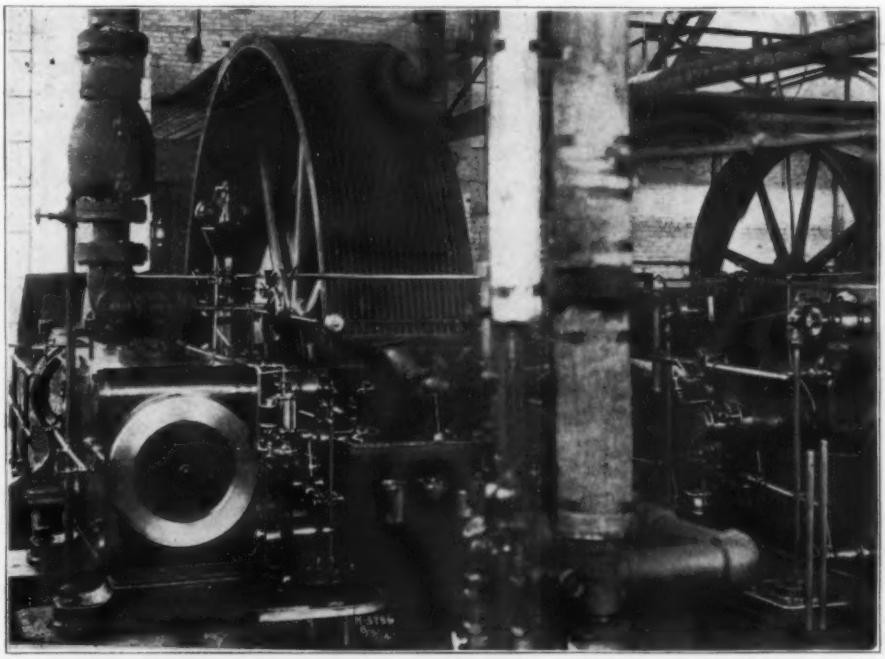


FIG. 2. A CORLISS ENGINE AT THE MISHAWAKA WOOLEN MFG. CO.

On the extreme left of the picture may be seen a compound Corliss engine, a better view of which is shown at Fig. 2. This engine, 750 h. p., is driven by means of a Dodge rope drive over into the main rubber mill and is used when there is a deficiency of water power only.

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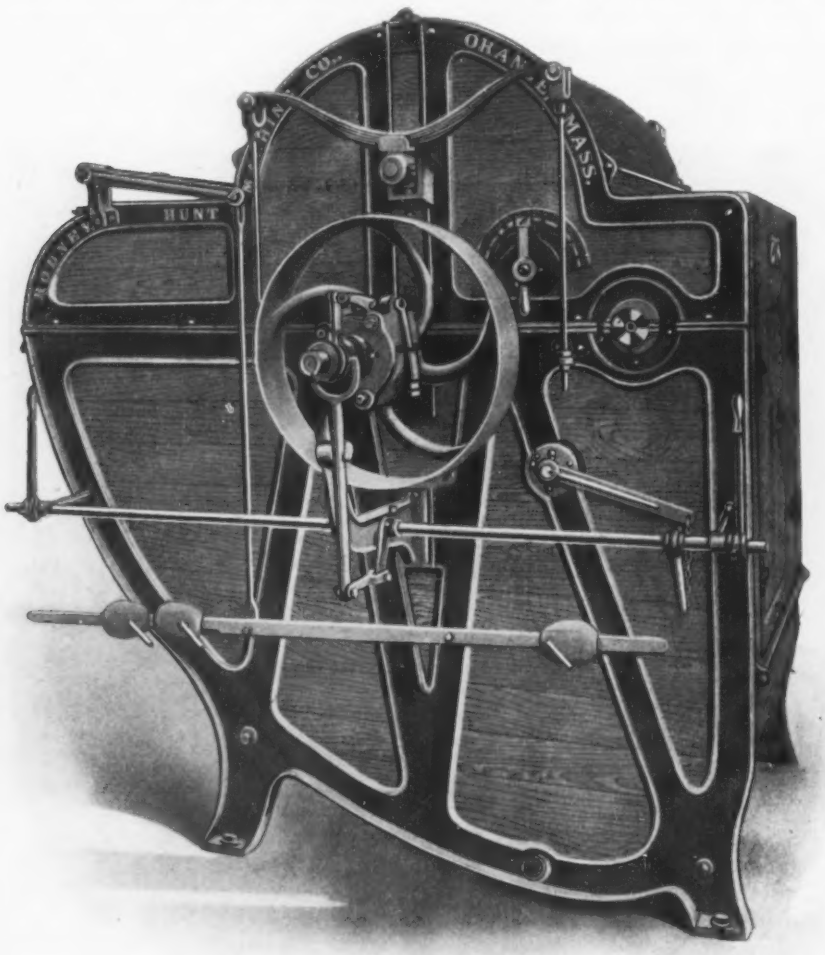
During the season of 1912-13 the total imports of American cotton into Great Britain amounted to 3,614,858 bales as against 4,304,654 bales in the previous year.

THE RODNEY HUNT IMPROVED FULLING MILL

The new Hunt Type M double braced fulling mill, recently brought out by the Rodney Hunt Machine Co., Orange, Mass., embodies several radical improvements. The side frames have been heavily reinforced with M design braces, not only giving greater strength and rigidity to the whole machine, but also providing for much more secure fastening of the side boards on all types of mills, which, up to this time, have always given more or less trouble by "buckling" away from the iron side frames. The extra weight of metal in these frames as well as the unique design of the braces, makes the lower roll bearings very stable, with the result that the whole fulling mill is free from excessive vibration found on so many previous types of fulling mills.



THE RODNEY HUNT IMPROVED FULLING MILL

The Hunt Type M double braced fulling mill also embodies many important features that will be quickly appreciated by operators. In place of the common light weight

packing box pressure applying levers, etc., the Hunt double braced Type M fulling mill is provided with outside compound weight arms which are instantly adjustable from lightest to heaviest loads. Levers connecting to packing boxes are very heavy and securely keyed to the supporting shafts. The pressure on the packing box covers is applied directly downward with great leverage.

The packing box construction in this new mill is most effective. The sides of the boxes where the greatest wear comes are fitted with removable brass wear strips. Bottom boards are adjustable and the whole design very heavy throughout.

Another feature which counts for the very rapid fulling and satisfactory operation by this mill, is the counter-balance stop motion frame which operates instantly through the friction clutch pulley to stop the mill in case of tangles or knots.

The Hunt simplex friction clutch pulley as used on these mills is fully guaranteed to give satisfactory results and has been found after many years' experience to be the most satisfactory and powerful fulling mill clutch in use.

On the end of the front whip roll shaft there is a disk on which is painted a white star. This serves as a signal to operators to indicate whether the mill is in operation or stopped. This is a small but important feature where many mills are arranged in a row, and on account of noise, or otherwise, it is difficult to tell which mills have stopped and which are in operation.

The double front doors and back and front shipper levers are improvements that will be much appreciated. The woodwork and construction of the mill throughout is of the most durable and substantial design. Ball bearings for the roll shafts are provided, if preferred, also the Hunt silent belt drive in place of the noisy long tooth gears. The Hunt silent belt drive with its many advantages has already been described in these columns, and the Rodney Hunt Co. state that practically 90 per cent. of the fulling mills that they furnish are specified to be fitted with the Hunt silent belt drive.

BALL BEARINGS ON SPINNING FRAMES

By ARTHUR V. FARR, of the S. K. F. Ball Bearing Co.

We live and learn, and the experimental work of yesterday becomes the standard practice of today. A decade ago the application of ball bearings on spinning frames was an inventor's dream, but in the last three years, it has become an established fact. In Europe especially, ball bearing spinning frames are being adopted for high grade installations and in this country the larger and more progressive spinning frame manufacturers equip machines with ball bearings on the request of customers.

The manufacturer in considering the appli-

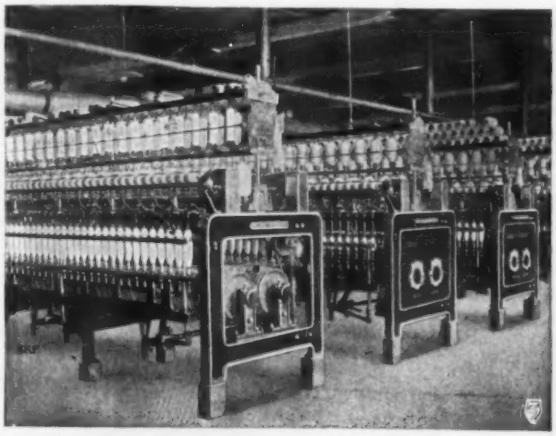


FIG. 1. BALL BEARING SPINNING FRAME, ENGLISH MAKE

cation of ball bearings to his spinning frames wants to know:

1. How soon will the installation pay for itself?

2. How long will the bearings last?

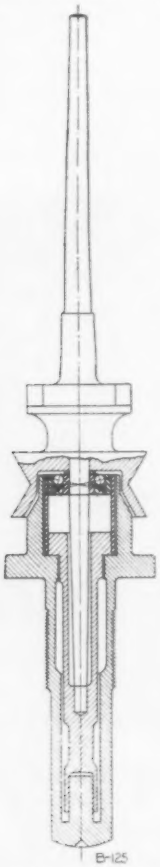
3. What does the power saving amount to?

4. What are the advantages in using ball bearings?

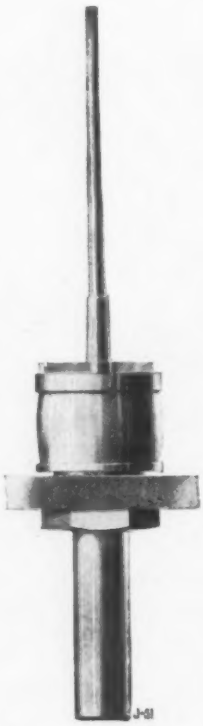
Although no hard and fast rule can be laid down, the experience of users of ball bearing spinning frames has shown that under average conditions, the increased cost of ball bearing machines will show a full return to the user within two or three years.

In determining the length of time required

to net the return on the investment, it is necessary to take into consideration: (a) Saving in power; (b) Saving in driving bands; (c) Saving in lubricant; (d) Savings resulting from various conditions differing with the individual mill, and which do not fall under regular classification, such as: increased speed and production, decreased attendance and repair costs, increased number of spindles per frame, and freedom from lubrication difficulties.



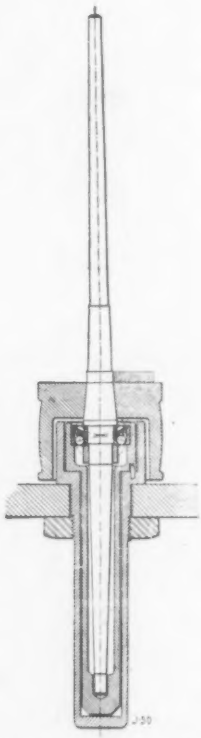
ARRANGEMENT OF BALL BEARING SPINNING SPINDLE



BALL BEARING RING TWISTER SPINDLE

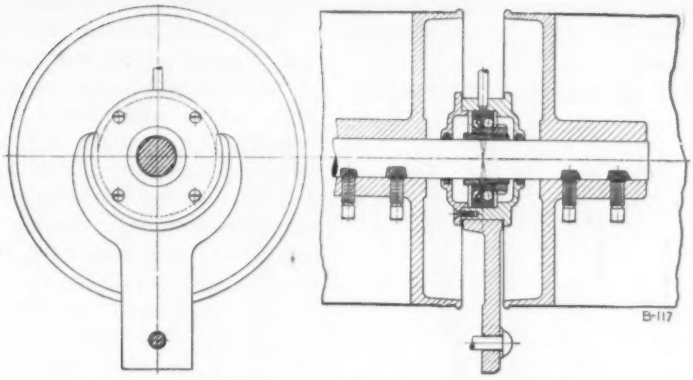
The sum of these savings reckoned for a period of a year and divided into the cost of the ball bearing installation gives the time required for the equipment to pay for itself, exclusive of interest and depreciation charges.

Properly designed ball bearings after long service show no appreciable wear. Tests have shown that ball bearings have run three years (the length of time that the application has been tried) without the slightest sign of wear. It is safe to say that with proper treatment, the bearings will last two or three times this period and how much longer cannot be stated. Only time will show what the ultimate life of a ball bearing will be, but there is every indication that it is at least equal to the average life of factory equipment.

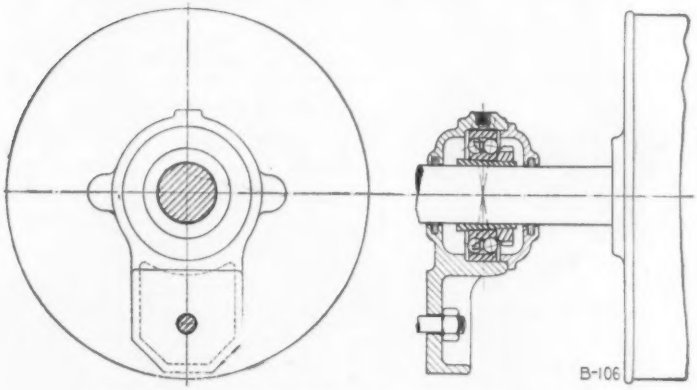


SECTION THROUGH TWISTER SPINDLE SHOWING ARRANGEMENT FOR MOUNTING

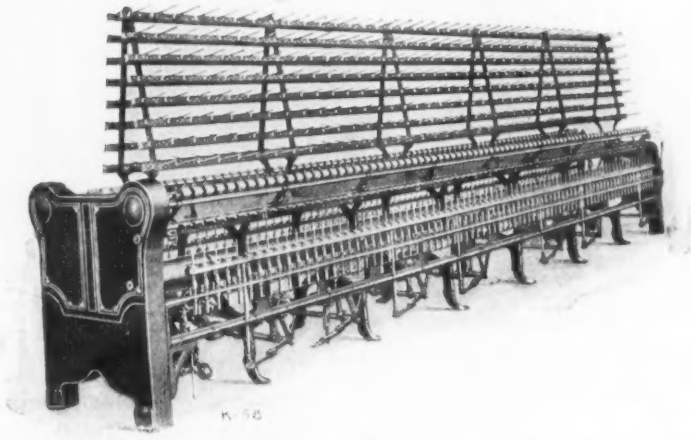
There have been careful tests made of the power saving, using one type of ball bearings. The results may be summarized as follows: With the spindles equipped with the ball bearings there is a saving varying from 10 per cent. on twisters to 25 per cent. on fine spinners. With the cylinders also equipped with ball bearings, there is an additional saving of 5 per cent. In calculating



MOUNTING ARRANGEMENT ON INTERMEDIATE CYLINDER BEARINGS



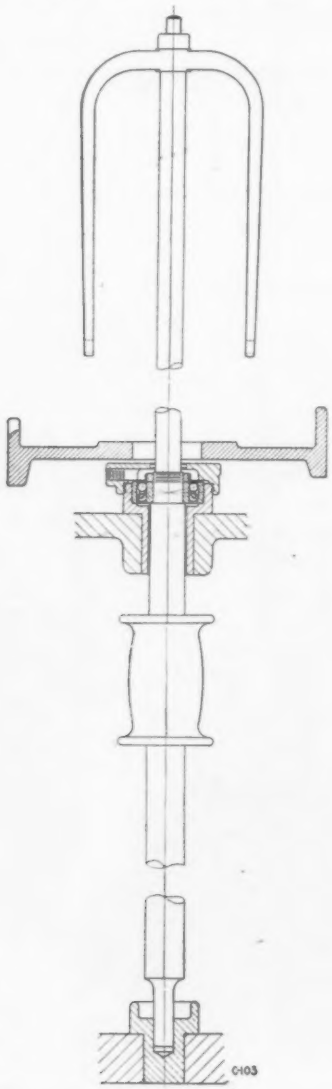
HEAD BEARING OF CYLINDER DRUM MOUNTED ON BALL BEARINGS



RING TWISTER FRAME OF AMERICAN MANUFACTURE WITH BALL BEARINGS ON CYLINDER SHAFTS AND SPINDLES

the length of time required for a ball bearing equipment to pay for itself, these percentages may be used.

In making the calculation it is necessary



ARRANGEMENT SHOWING MOUNTING OF BALL BEARING FOR HIGH-SPEED JUTE TWISTER SPINDLE

in addition to the percentage of the power saving, to know the amount of power consumed by the frame as well as the cost of power.

The above figures are conservative and the savings are often exceeded.

In addition to the power saving, ball-bearing frames require lubrication and attention about one-half as frequently as plain bearings. It is well known that unless plain bearings on spindles are kept thoroughly lubricated, the top of the bearing runs dry and wear starts. It is necessary to lubricate new plain bearing spindles very frequently, and when "well worn to a seat," it is necessary to lubricate them once a day to once a month, depending on the class of work. Ball bearings on the other hand are at the center of the whorl and are therefore kept thoroughly lubricated. Ball bearings that are open at the sides are assured of thorough positive circulation of the lubricant.

Owing to the fact that ball bearing spindles revolve freely and easily, tension on the bands may be considerably reduced without slippage taking place. With plain bearings, the band tension must be such that the bands wear and stretch. As the bands stretch the tension is reduced, and the twist in the yarn is slackened. With ball bearing spindles, the easy driving keeps the twist uniform and eliminates slack yarn. This distinctive advantage of ball bearing spinning frames is readily appreciated.

The reduced friction of each ball bearing spindle results in an increase in the number of spindles per horse power. Self-aligning ball bearings also permit an increase of the length of the frame without danger of cramping the bearings. With plain bearings, it is necessary to level up the frames constantly in order to prevent the cylinder bearings from binding, and the necessity for leveling increases with the length of the frame.

—:—

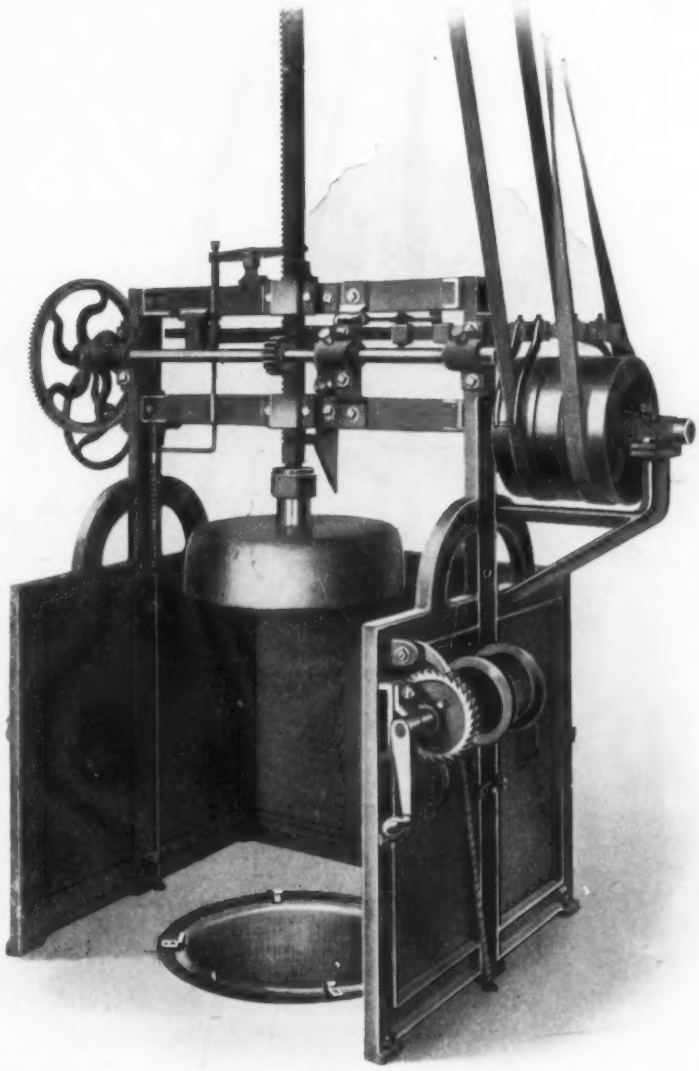
There are in Great Britain 58,481,000 spindles, 786,000 looms consuming 4,427,000 bales of raw cotton and employing 637,000 operatives.

During 1913 the exports of knit goods from the United States amounted to $2,613,806, of which $1,005,772 went to England, $396,879 to Canada, $121,777 to Australia, $39,337 to British South Africa, and $35,569 to the British West Indies.

THE C. G. SARGENT'S SONS IMPROVED BAGGING MACHINE

The bagging machine shown in the illustrations has recently been placed on the market by the C. G. Sargent's Sons Corp., Graniteville, Mass. It is used for the automatic bagging of greasy, scoured and dyed wools, as well as noils, cotton, shoddy, waste and other textile raw materials. It gives a bag of uniform density containing much more material than can be packed by the old methods.

The machine is built entirely of metal and designed to give great durability as well as convenience in handling. No skilled labor is required in its operation and it is absolutely safe, there being no risk of injury to the attendant. The plunger, when raised, is automatically held by a positive safety catch, that is released only by the hand

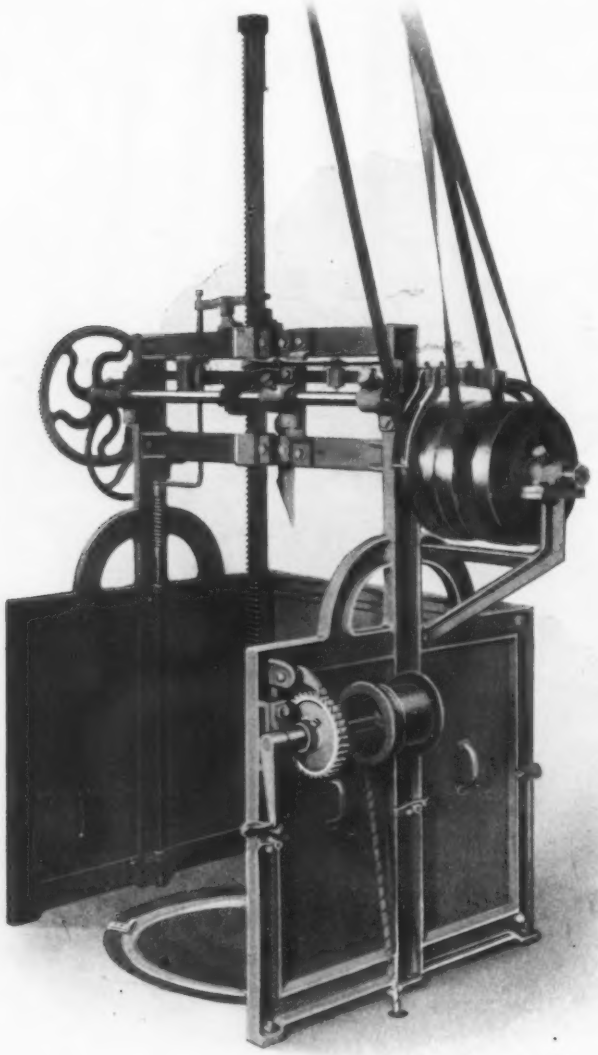


THE SARGENT AUTOMATIC BAGGING MACHINE WITH PLUNGER RAISED IN FILLING POSITION

shipper. The loose pulleys are so arranged that they cannot become fast on the shaft. The graduation of the amount of compression is quickly obtainable and may

securing bags of a uniform weight and a smooth and compact appearance.

A positive bagger will increase the daily output of filled bags and give an additional



THE SARGENT AUTOMATIC BAGGING MACHINE WITH PLUNGER LOWERED

be adjusted to the fraction of a pound to meet the varying requirements. The proper compression being once determined, it remains constant without further attention. This feature is of the utmost importance,

weight of from twenty to thirty pounds to each. This means a saving in storage space, cartage, freight and bagging material. One machine can easily handle from three to four times the number of bags that can be filled

by the old method. From fourteen to seventeen bags can be handled in an hour.

In addition to the bagging machine the C. G. Sargent's Sons built a friction drum hoist for rapidly removing the filled bags from the bagging holes. A slight pull on the pendant rod operates a sleeve, bringing the apparatus into operation.

The large number of textile manufacturers and dealers who have not given the matter close attention will doubtless be surprised at the heavy cost of bagging raw materials. A very large part of this cost can be saved by the use of the Sargent automatic bagging machine and the builders invite correspondence and will be pleased to explain the operation of the machine and show its many advantages.

CLEANING TEXTILE MACHINERY BY COMPRESSED AIR

BY A. W. THOMPSON

About five years ago this subject was thoroughly discussed and the interest in the subject at that time was widespread, many manufacturers installing apparatus. As far as we are aware, these have been successful and the owners well satisfied with the results. Lately, in visiting a number of mills equipped with air cleaning apparatus, I have noticed that the best practice is not always being followed. This leads me to address a few remarks to the trade on this subject. I do this in the hope that those already equipped will investigate the gains made possible by better methods, and that those not equipped will profit by the progress of the last few years in their coming installations.

The advantages of compressed air cleaning may be summarized as follows:

1. Necessary cleaning can be done more thoroughly than by any other method, and in considerable less time.

2. The necessary cleaning usually done while the machinery is in operation can be accomplished with absolutely no danger to the operative; whereas accidents to operatives cleaning running machinery with brooms or cloths are frequent.

3. The manual labor of cleaning is greatly reduced and the new method is therefore much more acceptable to the help. The result in better work and less labor.

4. The saving in time required and the ability to clean machinery while in operation adds a very appreciable gain in production.

5. All departments can be kept so much cleaner that the quality of the product is perceptibly improved and the risk of fire greatly reduced.

6. Reduced cost for cleaning accompanied by increased production is bound to reduce costs.

The two largest fields for pneumatic cleaning are undoubtedly in spinning and weaving rooms. Carding and roving machinery and nappers, while perhaps not offering the same returns as spinning and weaving, will show greatly improved results. Tentering machines, cloth drying machines, etc., handle large quantities of product, and in mills where these machines are worked to their limit, the reduction of lost time yields a handsome return. A mill using warp tying machines have large numbers of harnesses to handle in one department, and the cleaning of harnesses with a proper special equipment makes a spectacular and highly convincing demonstration of the advantages of compressed air for this purpose.

A NOZZLE SHOWING THE LONG TIP

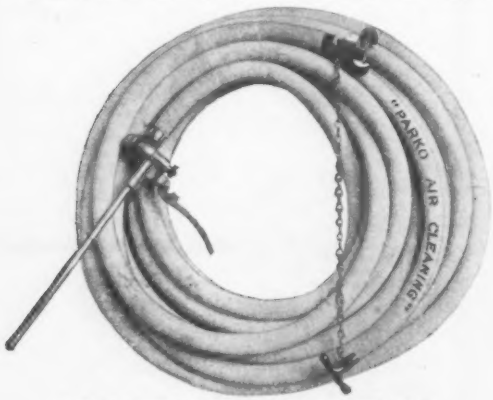
Mill ceilings, pulleys and shafting are often dirty because cleaning them is such a back-breaking task. By using a wooden pole through which passes a light weight brass tube, the labor is greatly reduced. Cleaning of shafting and ceilings should of course be done outside of running hours; or the machinery in the neighborhood should be shut down while the overhead cleaning is going on.

Five years ago air pressures as high as 75 to 80 lbs. were freely used. The writer has come to believe that 30 lbs. pressure is

sufficient and more economical.

The air compressor should be provided with an aftercooler. The aftercooler should be large enough to keep the temperature of the compressed air lower than that of the room. Thus all water and oil vapor coming from the compressor is condensed in the aftercooler. The air for cleaning is then absolutely dry and free from troublesome water or oil.

I know of no better nozzle for air clean-



A HOSE ESPECIALLY DESIGNED FOR CLEANING MACHINERY

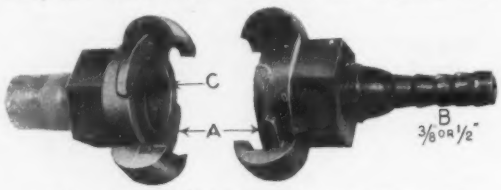
ing service than that recommended five years ago and shown on another page. The small tip limits the amount of air to that absolutely necessary to remove the lint or dirt from the machinery surfaces and to allow it to drop to the floor. An excess of air is not only unnecessarily wasteful, but also tends to scatter lint from one machine to another. The nozzle has a lever which is pressed by the operative when in use. At all other times the nozzle valve is automatically closed and prevents a waste of air.

The long tip on this nozzle also enables the operative to reach all the parts of the machinery. In otherwise well equipped mills, I have seen short nozzles in use with a 1/4 inch outlet. The disadvantage of this is obvious. The tip on the Parko nozzle has an outlet less than 1/8 inch in diameter. It uses about one-quarter as much air as the large nozzle, and discharges the air intermittently as required. The plain nozzle discharges the full capacity of the nozzle from the moment the outlet valve at the other end of the hose is opened.

Five years ago plain hose or steel armored hose was generally used. Plain hose wore out very quickly owing to the friction on the corners of machines, etc., to which it was constantly exposed. Armored hose literally wore itself out by its own weight while it was being dragged around. Practice has demonstrated the importance of using the lightest possible hose. While five years ago 3/4 inch hose was used, the most popular sizes in well equipped mills are today 1/2 and 3/8 inch, the latter prevailing in popularity partly on account of its lower cost but more on account of its greater durability. Ordinary garden hose or commercial air hose will not answer the purpose.

A hose especially designed for this service containing a high grade of rubber and a specially woven fabric proves, even if used bare, of superior durability. For further protection, a special closely woven cotton fabric is used outside of the hose. On account of its smooth, hard surface, it is not so easily caught or torn by nails, splinters or other projections to which it is exposed in use. This cotton covering alone will outlast the life of ordinary bare hose.

When the cover finally becomes unfit for use, the bare hose remains for further use



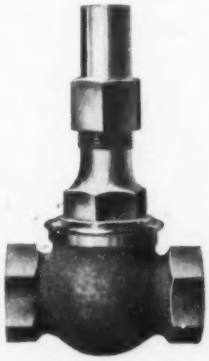
A "QUICK-HITCH" COUPLING FOR COMPRESSED AIR

and when a length finally becomes unfit for use, as a whole length, it may be cut up into shorter pieces about two feet long, known as leaders. These when coupled on to the end of a full length further increases the life by assuming the wear and tear that naturally comes close to the coupling at the valve end. Old hose should be carefully saved and utilized for this purpose.

The ordinary screw coupling used on garden hose is provided with a loose gasket which is easy to loosen and is seldom absolutely tight. In water service, the loss of a little water is unimportant, but in air service the small leaks are expensive and an-

noying. Screw couplings are unfit to use on hose which is being frequently coupled and uncoupled on account of the wear and tear and danger of cross-threading. A "quick-hitch" coupling of some accepted type is essential for air cleaning, not only on account of the increased facility of frequent coupling and uncoupling, but also because the "quick-hitch" couplings are equipped with expanding gaskets and become tight as soon as the pressure is applied.

To prevent the opening of the valves and consequent waste of air by irresponsible help, a special valve on which the stem is protected by a shield should be used. This stem should fit a special key, and the key



A SPECIAL VALVE FOR COMPRESSED AIR CLEANING

may be attached by a chain to the coupling end of the hose. The cleaning operator becomes the only person who can open the valve. This he does after attaching the hose, and closes it before uncoupling to move to the next outlet.

A sufficient number of valves and outlets should be installed in every department to enable the operative to reach every machine in the room without the use of an excessively long hose. The length commonly used is from 50 to 60 feet. Mills already equipped with any type of hose or nozzles can conveniently make the change from the old type equipment to the new by the simple process of replacing the male coupling end now attached to their valves or outlets by a nipple screwed into a quick hitch coupling.

By putting on a leader or short length of modern hose equipped with a "quick-hitch" coupling at one end and one of their original couplings at the other, and attaching one of these leaders to each length of hose, the mill will then be possessed of all the advantage of the "quick-hitch" coupling. As fast as their old hose becomes unfit for use and requires replacement, the use of the new type of hose and couplings may become automatic.

In small departments, special organization is not necessary, as any ordinary operative can readily learn to use the apparatus. In

CLEANING OVERHEAD SHAFTING BY COMPRESSED AIR

large departments, however, it will be good economy to establish a special cleaning organization, limiting the use of the apparatus to those specially designated. The cleaning operatives will thus become highly skilled and more efficient than the ordinary operative with resultant reduction in the pay roll. When compressed air humidifiers are available or about to be installed, the cost of an air cleaning installation is very slight, as the mains for the two systems will be identical. The cost of an independent installation for cleaning will of course vary with local conditions, but the returns will amply justify the expense.

Personals

Clifford J. Alspaugh has been appointed general superintendent of finishing for the American Thread Company's plant at Willimantic, Conn.

James P. Southern, superintendent of the Champlain Silk Mills, Brooklyn, N. Y., has severed his connection with that company.

David M Mullin has accepted the position of overseer of knitting at the Adler Underwear and Hosiery Co., Cincinnati, O. He was formerly employed at the New Way Knitting Co., Williamston, Mich.

T. J. McNeely has accepted the position of superintendent at the Elberton Manufacturing Co., Elberton, Ga.

Stephen C. Lowe, who recently resigned the agency of John Hetherington & Sons., Ltd., to take effect October 1, will become associated with the Whitin Machine Works, Whitinsville, Mass., at that time. It is understood that a Boston office will be opened, of which Mr. Lowe will have charge, paying special attention to the comber department with which he has been particularly identified in the past.

William Breed has accepted the positon of overseer of spinning at the Dunson Mills, LaGrange, Ga., to succeed the late Charles McDaniel.

C. T. Sigmon has accepted the position of overseer of spinning at the Cleghorn Mill, Rutherfordton, N. C. He was formerly employed at the Melville Cotton Mills, Cherryville, N. C.

Clayton H. Carpenter has accepted the position of spinning at the Rhodes Manufacturing Co., Lincolnton, N. C.

C. E. Tucker will be superintendent of the new National Yarn Mills at Belmont, N. C. He was formerly employed at the Chronicle Mills, at the same place.

Louis Hyle has been promoted from the position of second hand to overseer of carding at the Columbia Cotton Mills, Columbia, Tenn.

J. A. Mauney has accepted the position of overseer of the cloth room at the Norris Mill, Cateechee, S. C.

E. Faulkner has accepted the position of overseer of weaving at the Barber Cotton Mill, Mobile, Ala., to succeed J. A. Holmes.

A. A. Short has accepted the position of overseer of weaving at the Richland Mill, Columbia, S. C.

Louis Posey has been promoted from the position of second hand to overseer of spinning at the Columbia Cotton Mills, Columbia, Tenn.

James Emerson, for many years second hand in the weaving department at the Paul Whitin Manufacturing Co., Northbridge, Mass., has resigned to retire from active life. His fellow employes of that department presented him with a beautiful gold watch fob.

Edward Stratton, general superintendent of carding for eighteen years at the New England Cotton Yarn Co., of New Bedford, Mass., and one of the best known mill men in New England, has severed his connection with that company.

John R. Menzies, overseer of carding at the Airlie Mills, Hanover, Conn., has severed his connection with that company.

B. C. Hefferman, secretary and general manager of the Campbell Knitting Mill, Elmira, N. Y., has resigned his position with that company.

Edwin Barnes, who has been connected with William Firth as salesman for the last 15 years, has severed his connection with that concern.

Joseph B. Charlesworth, overseer of carding for a number of years for the Meredith Linen Mills, Meredith, N. H., has resigned his position with that company.

Gustav Weder has accepted a position as overseer of carding with the Jefferson Woolen Mills, Jefferson City, Tenn. He was formerly employed at South Bend, Ind.

George R. Giffin has accepted a position as overseer of weaving for the Somerset Mfg. Co., Raritan, N. J. He was formerly employed at the Merrimack Woolen Co., Lowell, Mass.

Fred McGuire has accepted a position as overseer of carding for the Meredith Linen Mills Meredith, N. H. He was formerly employed at the J. O. Ballard & Co., Malone, N. Y.

Norman P. Dempsey has resigned as overseer of dyeing for Ricketts & Shaw, woolen mill, Monson, Mass., and will give his full time to the dyeing at the mills owned by A. D. Ellis & Company, Monson, Mass. and Orcuttville, Conn.

Albert A. Booyn, second hand in the weaving department at the Nashawena Mill, New Bedford, Mass., has been appointed overseer of weaving and designing at the Corr Manufacturing Co., East Taunton, Mass.

Charles J. Henault has accepted a position as overseer of dyeing for the Angus Park Manufacturing Co., East Glastonbury, Conn. He was formerly employed at the Reliance Worsted Co Norwich, Conn.

Richard Bateman has accepted a position as superintendent of the Newmarket Mfg. Co., Newmarket, N. H. He was formerly employed in the weaving department at the Manville Co., Manville, R. I.

Wilfred Ward, treasurer and manager of the Bradford Dyeing Association of Bradford, R. I., has resigned. Arnold Higley, superintendent for this company, has also resigned. It is reported that they are to return to the home Company at Bradford, Eng.

Allen Osborne, superintendent of the Strathmore Worsted Co., Concord Junction, Mass., has accepted a similar position with the Scotia Worsted Mills at Woonsocket, R. I.

Anthony Dixon has been appointed superintendent of the National Crash Mfg. Co. of Millbury, Mass., succeeding S. Edgar Benjamin who has resigned his position with that company. Mr. Dixon has been in the employ of the company for the past eleven years in the capacity of assistant superintendent and master mechanic.

Goddard Carlston has been appointed overseer of finishing for the Sterling Mills, Lowell, Mass., having been promoted from the position as second hand.

James Cannon, overseer of finishing for the Rhode Island Worsted Co., Stafford Springs, Conn., has resigned his position with that company, and is succeeded by George Flannigan.

L. J. Hill, overseer of carding at the Rhodhiss Mfg. Co., Rhodhiss, N. C., has resigned his position and gone to his home in Shelby, N. C.

Ralph Hamilton, overseer of carding at the Lowe Mills, Huntsville, Ala., has resigned to accept a similar position at the Appalachian Mills, Knoxville, Tenn.

Joseph P. Hassell, of Hillsboro, N. H., has accepted a position as overseer of the cloth room at the Caraleigh Mills, Raleigh, N. C.

George W. Dearman has accepted a position as overseer of spinning at the Dixie Mills, Mooresville, N. C.

G. P. Pruett, formerly overseer of the cloth room at the Merrimack Mills, Huntsville, Ala., has accepted a similar position at the Monaghan Mills, Greenville, S. C.

L. W. King, of Rock Hill, S. C., has accepted a position as overseer of carding and spinning at the Fort Mill Mfg. Co., Fort Mill, S. C.

H. D. Burns of Fort Valley, Ga., has accepted a position as overseer of carding and spinning at the Glenola Cotton Mill, Eufaula, Ala.

George Carrigan, in charge of the combing department for the Berkshire Mills, No. 3 Adams, Mass., has resigned his position with that company to accept a position as overseer of carding at Putnam, Conn.

Frank Cadmus, supt. of the New Hope Silk Mills, Lambertville, N. J., has resigned his position to accept a similar one with a large silk mill at Buffalo, N. Y.

Edw. W. Stratton, general superintendent of carding for the New England Cotton Yarn Co. with mills at Taunton, New Bedford and Fall River, Mass., has severed his connection with that company after 18 years of service.

Harry J. Ricketson, agent of the Suncook Mills, Suncook, N. H., has resigned his position and is to accept a position as agent of the Butler Mills, New Bedford, Mass., succeeding Louis R. Kerr.

Walter C. Link, employed by the Imperial Printing and Finishing Co., of Bellefonte, R. I., has resigned to accept a position as chief clerk for the Garner Print Works and Bleachery at Wappinger's Falls, N. Y.

Cyrus Freeman, overseer of the cloth department for the Great Falls Mfg. Co., Great Falls, N. H., has severed his connection with that company.

Mrs. Jennie Curley, overseer of the sewing department for the Coronet Worsted Co., Mapleville, R. I., has severed her connection with that company.

Edward J. Barry, overseer of weaving at the Jackson Co., Nashua, N. H., for the past seven years, has resigned his position with that company. He is succeeded by James Greenbalge who has been second hand at this mill.

Daniel O'Leary has accepted a position as general superintendent of the Lowell Textile Co., North Chelmsford, Mass. He was formerly employed at the Thorndike Mills, West Warren, Mass.

Chas. B. Luther, treasurer of the Luther Mfg. Co., Fall River, Mass., has been elected permanent treasurer of the Stafford Mills, same city.

Thomas J. Trainor, overseer of carding for the Pondville Woolen Co., Auburn, Mass., succeeds E. R. Hardt Reithel as superintendent of the mill.

Charles Shumway, superintendent of the Chace Mills, American Woolen Co., Webster, Mass., has severed his connection with that company after 35 years continuous service. He is succeeded by Clarence F. Fletcher of the Riverside Mills, American Woolen Co., Providence, R. I.

Fred Wright has accepted a position as superintendent of the Coburg Dyeing Co., Ontario, Canada. He was formerly employed at the Auburn Woolen Co., Petersboro, Ontario, Canada.

J. B. Stroup has been appointed overseer of weaving for the Aldora Mills, Barnesville, Ga. He was formerly employed at Arlington, S. C.

R. V. Porter has accepted a position as overseer of spooling, warping and twisting for the Dixie Mills, LaGrange, Ga. He comes from Newberry, S. C.

Luke Fowler, overseer of dyeing for the Bellwill Cotton Mills, Wilmington, N. C., has resigned to accept a similar position with the Delgado Mills of Wilmington.

W. W. Holley has been appointed overseer of the cloth department at the Wylie plant at Chester, S. C.

H. C. Bushbee has been appointed overseer of weaving for the Lafayette Cotton Mills, Lafayette, Ga.

J. Roy Fant for the past two years with the Nicholson Bank & Trust Co., of Union, S. C., has been elected treasurer of the Lockport Cotton Mills, Lockport, S. C.

Thomas Perkins, superintendent of the Chicopee Mfg. Co., Chicopee Falls, Mass., has severed his connection with that company.

John W. Harmon has been appointed manager and superintendent of the Allendale branch of the Stillwater Worsted Mills, Providence, R. I. He was formerly employed as assistant manager of the Priscilla Worsted Mills, Providence, R. I.

Frank P. Creighton, for three years superintendent of the Intervale Mills, Quinebaug, Conn., has resigned on account of ill health. The employes presented him with a gold watch and a large bouquet of American Beauty roses. A hearty wish came from all that his health would improve rapidly. It is reported that Paul Gifford has assumed the duties at the mill for the present.

E. D. Royce, formerly agent of the Great Falls Woolen Co., Somersworth, N. H., is now in charge of the E. E. Hilliard Co., Inc., Buckland, Conn.

W. J. Wensley, general manager of the Carbondale Knitting Co., Carbondale, Pa., has severed his connection with that company.

Charles F. O'Gara has been appointed superintendent of the Nemasket Mill, N. E. Cotton Yarn Co., East Taunton, Mass. He was formerly employed in a similar position at Greene & Daniels Co., Inc., Pawtucket, R. I.

Thomas Holgate, for a number of years superintendent of the inspecting department at the Pacific Mills, Lawrence, Mass., has severed his connection with that company.

H. H. Fales has been appointed superintendent of the Champlain Silk Mills, Brooklyn, N. Y.

William Torrance, for the past three years in charge of the quilling department of the William Skinner's Son Silk Mill, Holyoke, Mass., has resigned to accept the superintendency of the Kansas City Silk Co., Kansas City, Mo.

John A. Lamb, overseer of cotton weaving at the Newmarket Manufacturing Co., Newmarket, N. H., has severed his connection with that company.

Frederic J. Hodgkins, overseer of weaving at the Bates Manufacturing Co., Lewiston, Me., has resigned.

David Allen has been promoted from second hand to overseer of weaving at the Bates Manufacturing Co., Lewiston, Me.

Richard Bateman has accepted the position of overseer of cotton weaving at the Newmarket Manufacturing Co., Newmarket, N. H. He comes from Manville, R. I.

Walter B. Oliver has accepted the position of overseer of the cloth room of the Great Falls Manufacturing Co., Somersworth, N. H. He was formerly employed at the Androscoggin Mills, Lewiston, Me.

Ernest Dube, overseer of spinning at the No. 5 Pocasset Mill, Fall River, Mass., has severed his connection with that company.

John Hughes has accepted the position of overseer of weaving at the American Linen Mills, Fall River, Mass. He was formerly employed at the Fall River Iron Works, in that city.

Warren Kelly has accepted the position of overseer of spinning at the Edwards Manufacturing Co., Augusta, Me., to succeed F. M. Frary.

Philip Contra has accepted the position of overseer of dressing at the Waterman Worsted Co., Putnam, Conn.

A. Felgentrager has accepted the position of overseer of finishing at the Bay State Mills, Lowell, Mass. He comes from Holyoke, Mass.

Paul H. Evelith has been appointed designer and assistant superintendent at the Portland Woolen Mills, Portland, Ore.

Richard T. Mills, overseer of spinning at the Killingly Manufacturing Co., Killingly, Conn., has resigned his position with that company.

Alexander Mileau has accepted the position of overseer of spinning at the Killingly Manufacturing Co., Killingly, Conn.

W. H. Bradley has resigned as president of the Palmetto Cotton Mill, Columbia, S. C., the Saxe-Gotha Mills and Lexington Manufacturing Co. of Lexington, S. C., the Middleburg Mills, Batesburg, S. C., and the Valley Falls Manufacturing Co., Spartanburg, S. C.

Marshall Dilling has been appointed superintendent of the Cabarrus Cotton Mills, Concord, N. C., to succeed A. L. Brown, recently appointed to the superintendency of the Cannon Mills at Kannapolis, N. C.

George Welch has been appointed assistant superintendent at the Equinox Mills, Anderson, S. C.

James Black has accepted the position of overseer of spinning at the Melville Manufacturing Co., Cherryville, N. C.

W. Y. Harrison has been appointed superintendent of the Covington Mills, Covington, Ga.

S. T. Petty has been appointed superintendent of the Little River Manufacturing Co., Willardville, N. C. He was formerly employed at the Eva Jane Mills, Sylacauga, Ala.

W. P. Lovitt has accepted the position of overseer of spinning at the Payne Mills, Macon, Ga. He was formerly employed at the Bibb Manufacturing Co., at the same place.

R. T. Grant has accepted the position of overseer of No. 4 weave room at the Dan River Mills, Danville, Va.

J. E. Wright has accepted the position as overseer of slashing and tieing-in at the Langley Manufacturing Co., Langley, S. C.

L. E. Myers has accepted the position of master mechanic at the Kershaw Cotton Mills, Kershaw, S. C.

George D. Simpkins has been appointed overseer of spinning, spooling and warping at the Poulan Cotton Mills, Poulan, Ga.

J. W. Crabb has accepted the position as overseer of carding, spinning and spooling at the

South Texas Cotton Mills, Brenham, Texas. He was formerly employed at the Huntsville Knitting Mills, Huntsville, Ala.

Russell Kale has accepted the position of overseer of carding at the new National Yarn Mills, Belmont, N. C. He was formerly employed at the Majestic Mills, at the same place.

Arthur P. Ganong, of Memphis, Tenn., prominent in cotton circles throughout the South, died recently on a Southern railway train near Grand Juction, Tenn. Mr. Ganong recently severed his connection with the firm of Ganong & Reid of Memphis. He was returning to Memphis from New York, where he went to clear up his connection with several cotton concerns.

DEATHS.

Albert Charles Houghton, president of the Arnold Print Works, North Adams, Mass., died Aug. 11, as a result of an automobile accident several days ago. Mr. Houghton was born in Stamford, Vt., Apr. 13, 1844. His first big venture was in 1871 when with Arthur A. Smith, Chester Bailey and William W. Gallup, he bought the Beaver Mill property of the late S. W. Brayton. In the same year he became identified with the late Oliver, John F., and Harvey Arnold in the conduct of the Arnold Print Works and the cotton mill in North Pownal, Vt. He had since been connected with this latter institution which is one of the largest of its kind in the world. He had during his long career been identified with the banking institutions of North Adams and was for many years president of the North Adams Savings Bank. Mr. Houghton was the first mayor of North Adams and devoted considerable time and money to the development of the town. Until about seven years ago he was active in the management of his large enterpises, but since that time his health had been poor and he gave up many of the cares of business life. His widow and two daughters survive him.

John Butler Smith, founder of the Contoocook Mill Co., manufacturers of hosiery and underwear at Hillsboro, N. H., died at his home in that city, after a long illness, at the age of 76 years. Mr. Smith was prominent in business for many years as owner of the Contoocook Mills. Three years ago he sold his interest to the Contoocook Mills Corporation. He was president of the Hillsboro Savings Bank at the time of his death. In 1893 and 1894 he was Governor of New Hampshire. Mr. Smith had been deeply interested in church affairs. His wife and two sons survive him.

Samuel Lobsitz, president of the Lobsitz Mills Co., manufacturers of wool and silk carding and garnetting, Nutley, N. J., died Aug. 11, at the Idylease Sanitarium, Newfoundland, where he had been since last May. Mr. Lobsitz was unmarried

James H. McCormack, for many years prominent as a lace importer, died August 11, after a long illness, at the age of 54 years. His widow and two sons survive him.

William K. Sharp died at the Wentworth Hospital, Dover, N. H. following a short illness. He was seventy-four years of age and for a number of years was in charge of the wool sorting and wool buying for the Sawyer Mills, Dover, N. H. He was later employed with the Amoskeag Mfg. Co., Manchester, N. H.

H. G. Armitage, a member of the executive committee of the William Clark Thread Co., died at his home at Bay Shore, L. I., at the age of seventy-five years, of heart disease. He was born in England and at the outbreak of the Civil War came to this country and served as a lieutenant on the staff of Gen. Taylor. He was considered one of the best authorities on thread in this country.

Hiram Rathburn, superintendent of the Byfield Woolen Co., manufacturers of bed blankets and felts at Byfield, Mass., died Aug. 11. He was a native of Hopeville, Conn., being born Oct. 14, 1852. Mr. Rathburn was prominent in Masonry, being a member of the Knights Templars of Willimantic, Conn., and a member of the Shrine at Hartford, Conn. He is survived by a widow, one son, one sister and two brothers.

Hiram Atkinson, vice-president and secretary of the Berwyn Silk Co., Paterson, N. J., died Aug. 10. Mr. Atkinson was born in Bradford, England, fifty-eight years ago and came to this country when he was forty years of age, at which time he started in the silk business. His wife, one daughter and one son survive him.

Nehemiah Nichols, one of the best known mill men in the Pawtuxet Valley, and who was superintendent for the B. B. & R. Knight mill at River Point, R. I., died at Natic, R. I., at the age of 71 years. He leaves one son and a daughter, his wife having died several years ago.

George H. Frieze, a well known woolen merchant and member of the firm of Frieze, Cone & Company, New York City, died at Spring Lake, N. J. He had been engaged in the woolen business for a number of years.

William Harrison, founder and managing director of the Harrison Patent Knitting Co., Manchester, England, died July 15, at his residence, Plymouth Villa. The management of the business, which has been under the control of John W. Harrison and Chas. W. Harrison sons of the deceased for several years will be continued. William Harrison becoming the joint Governing Director of the company.

Samuel Brett, a machinist employed by the Intervale Mills of Quinebaugh, Conn., died suddenly while at work in the machine shop of heart failure. He had been in their employ for a number of years and was highly respected.

William H. Jones, a well known resident of Rockville, Conn., died at his home in that city at the age of seventy-six years. After leaving England he settled in Rockville and was employed in the old Florence Woolen Mill and later became overseer of dyeing for the Hockanum Co. of that city, a position he held for twenty-five years. He

served the city as alderman for two terms and represented the town of Vernon, Conn., in the legislature.

Henry K. Rowell, textile engineer and mill expert, of Boston, Mass., died suddenly on August 9 from heart failure. He was born June 1, 1870, in Charlestown, Mass. At the time of his death he was in charge of the department of machinery and mill organization in the office of Charles T. Main, mill engineer and architect, Boston. Mr. Rowell's experience in mill work was very extensive, he having been engaged in practical organization work in textile mills for some years.

Thomas Anson Matthews, president of the New York & New Jersey Lubricant Co. of New York City, died August 16, at his home in that city, at the age of 53 years. He was born in Goshen, N. Y., and was graduated from the Episcopal Academy of Connecticut at Cheshire, Conn. He finished his education abroad. Mr. Matthews was a member of the Chamber of Commerce, and Merchants Association of New York, the Cheshire Alumni Association, the Sons of the Revolution, the Pilgrims of the United States and various clubs. His widow, his mother, a sister and one brother survive him.

Charles Sumner Barton, president and treasurer of Rice, Barton & Fales Machine & Iron Co., designers and builders of textile printing machinery, Worcester, Mass., died July 11. He was born Sept. 21, 1857.

Stephen R. Capps, president of the Jacksonville Woolen Mills, J. Capps & Sons, Ltd., proprietors, Jacksonville, Ill., died recently in that city at the age of 76 years. He was a graduate of Illinois College and had been connected with the woolen manufacturing business ever since leaving college. The mill of which he was the head was established in 1839. He is survived by eight children, one of whom is secretary of the company.

Michael Organ, who was engaged in the underwear manufacturing business for thirty years, died at his home in Troy, N. Y., after a long illness from a complication of diseases. Mr. Organ had been superintendent of the Hudson Valley Knitting Co., and superintendent and stock-holder of the Waterford Knitting Co., and Troy Knitting Co. His last business connection was as superintendent of the Parsons Manufacturing Co., of Cohoes, N. Y. He was considered an expert in the knit goods line, and ranked among the best of traveling salesmen at one time. His widow and two daughters survive him.

William H. Taylor, head bookkeeper and confidential secretary of the Wanskuck Co. Mills, Providence, R. I., died recently, after an illness of six months of Bright's disease, at the age of 49 years. He had been in the company's employ for thirty-one years. He was also secretary and treasurer of several organizations connected with the firm. His widow and four brothers survive him.

William H. Hall, formerly general manager of the George H. Gilbert Manufacturing Co. at Ware, Mass., died at Springfield, Mass., after a protracted illness at the age of 59 years. He was connected with the Gilbert Company for eighteen years. A widow and daughter survive him.

Simeon H. Murray, for many years a prominent resident of Lewiston, Me., died August 12, after a short illness. Mr. Murray was born in Lewiston Aug. 19, 1825. He was educated in the public schools and at Lewiston Falls Academy. In 1852 he went to work in the Bates Mill at Lewiston, and four years later went to Malden, Mass., where he had charge of the weaving in the Massachusetts Mill. He returned to Lewiston in 1857 and became an overseer in the Continental Mills, where he continued until 1890, when he retired. Two sons survive him.

Milton R. Louden, a carpet designer, died recently at Brooklyn, N. Y., at the age of 59 years. Mr. Louden retired several years ago. He was for forty-five years connected with the Bigelow Carpet Co. His widow and one daughter survive him.

Thomas J. Hill, for more than twenty years superintendent of the Lamb Knit Goods Co. at Colon, Mich., and president of E. R. Hill & Sons' bank, died recently at the age of 60 years.

J. F. Gee has been appointed manager of the Carbondale Knitting Co., Carbondale, Pa. Gordon Dimmick has been made assistant manager and Jacob Fuchs is designer and inspector.

William Tinkham, one of the oldest woolen and worsted manufacturers of Rhode Island and one of the oldest railroad presidents in the United States, died August 21 at the home of his daughter in Providence, R. I. Mr. Tinkham was 91 years of age. In 1853 he entered the mill business at Mapleville, R. I. In 1856 the firm of Steere & Tinkham was organized and the mill at Harrisville, R. I., was purchased. He bought out his partner's interest in 1873 and conducted the business under the firm name of Tinkham, Farwell & Co. One son and a daughter survive him.

Francis B. Sears, chairman of the Board of Directors of the National Shawmut Bank, Boston, Mass., died at his home in Weston, Mass. Mr. Sears was born in Wayland, Mass., June 21, 1849. He was vice-president and director of the National Shawmut Bank, Working Men's Co-operative Bank and director of the Working Men's Building Association, Lanett Cotton Mills, Lanett Bleachery & Dye Works and the West Point Manufacturing Co.

James L. Little died at his home in Brookline, Mass. He was born in Boston in 1845 and for a number of years was active in the affairs of the Pacific Mill at Lawrence, Mass., his connection dating back to the time of his graduating from school. Mr. Little was also a trustee of the J. L. Little Estate and a member of the Union Club.

Samuel J. Hall died at his home in Jamaica Plain, Mass. He was born in Worcester, Mass., in 1856 and was educated at the public schools. At the age of 22 he took up the making of elastic hosiery and for many years carried on the business at Columbus Ave., Boston. His wife and a son survive him.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

Davison's Hosiery and Knit Goods Trade; The Davison Publishing Company, New York. Price $2.00.

The 24th annual edition of this useful publication has been received. It is a directory of the hosiery and knit goods manufacturers of the United States and Canada and includes concerns in allied lines such as jobbers, large retailers, manufacturers agents, also various classified lists. The book is well printed and bound and gives evidences of the usual careful editing.

BUSINESS LITERATURE

Ball Bearings in Machine Tools; The Hess-Bright Manufacturing Co., Front St. and Erie Ave., Philadelphia, Pa.

The various uses of Hess-Bright ball bearings is clearly set forth in a 27-page pamphlet just issued by the Hess-Bright Mfg. Co. The function of these ball bearings is to save repairs and to maintain original accuracy and alignment of spindles, etc., quite as much as it is to save power. Being free from friction these ball bearings are practically wearless and they do not require the periodic taking-up that all plain bearings demand. They last indefinitely with the same snugness and accuracy of fit as when new.

Permutit; The Permutit Co., 30 East 42nd St., New York.

A 20-page illustrated booklet describing and illustrating the various uses of Permutit for softening water. Hard water is a constant source of annoyance and expense. It forms scale in steam boilers and pipes, spoils materials, and mars the quality of many manufactured products. Lime and magnesia in varying combinations constitute the hardness of water. The Permutit softening filter makes the hardest water absolutely soft. It removes from the water every trace of lime and magnesia regardless of the quantity and combination in which they may be present. The rapid growth in the number of installations in this country speaks for itself.

S. R. Latshaw, who was for a number of years in charge of the Textile Department of the Curtis Publishing Co., with headquarters in Boston, and later assistant to the advertising director in New York, has recently become connected with the Butterick Publishing Co. in a similar important position in their Business Department. Mr. Latshaw is pleasantly remembered by the textile manufacturers, most of whom he met during his New England residence.

Industrial Notes

JOHN HETHERINGTON & SONS' AGENCY FOR UNITED STATES AND CANADA

John Hetherington & Sons, Ltd., Manchester, Eng., cotton machinery builders, have announced the appointment of A. S. Fuller as their agent for the United States and Canada. Mr. Fuller has had a valuable experience as a machinery man and mill expert and comes well equipped with the knowledge and ability to make good in his new position. He comes as no stranger to this country for in his sojourn here for two years, representing the same company, he made hosts of friends among the textile manufacturers who will be glad to welcome him back in his new position. We not only extend our congratulations to Mr. Fuller and wish him all the success possible, but also congratulate John Hetherington & Sons, Ltd., on this appointment. The position was made vacant by the resignation of Stephen C. Lowe.

MICHAEL KERWIN

In order to be in closer proximity to the textile center of Philadelphia, Michael Kerwin has removed his offices from 439 N. 53rd St. to 2321 E. Norris St., right in the heart of the textile district. Mr. Kerwin has been compelled to make this move for the purpose of keeping in closer touch with the manufacturers for whom he is erecting machinery for the spinning of cotton, woolen, worsted, silk and flax yarns, making a specialty of worsted machinery. In addition to doing work of this kind in any section of the country, all of which he guarantees, he also dismantles plants, packs and ships their equipments to any desired location.

The Seydel Mfg. Co., manufacturers of textile soaps, sizings and finishings, Forrest and Halladay Sts., Jersey City, N. J., have recently sent out the following notice to their customers:—"Dear Sirs: Owing to the European War the importation of all sizing materials and chemicals will be held up for at least 90 days. In the meantime, we are prepared to analyze any and all imported articles and duplicate same, insuring the same sizing and finishing results as secured with imported goods. We are forced to withdraw all quotations on soaps made of Palm Oil and Olive Oil, but think that the prices of these oils will return to normal within 60 days. As the textile trade has shown an extraordinary activity in the last few days, we advise our friends to tell us their needs for the next six months and we shall insure them against delays and exorbitant prices."

HUMIDIFIER EQUIPMENT FOR NAUMKEAG

The Naumkeag Steam Cotton Company, Salem, Mass., have placed the order for the humidifier equipment for their new weaving mill with the American Moistening Company, Boston, Mass. This will be a standard, up-to-date equipment of atomizers, specially designed for this equipment.

THE SITUATION TODAY

The Cassella Color Co., New York, have sent the following notice to the trade:—During the past three weeks our clerical and shipping and laboratory forces have been engaged day and night in preparing and distributing our stocks of colors to our regular trade in proportion to previous consumption. We are still engaged in this undertaking.

In the meantime, we have been fortunately able to arrange with K. van Andel, a retired officer of the Dutch Navy, brother-in-law of Dr. Arthur von Weinberg, of Leopold Cassella & Co., G.m.b.H., and a resident of Holland, to act as special agent for us in the Netherlands to do everything possible to expedite any shipments en route to us down the Rhine and across the frontier. Mr. van Andel sailed from New York on this errand by the S. S. "Potsdam" on August 15th.

This explanation is made for the benefit of our friends and customers in order that they may be assured that everything is being done in their interest which is humanly possible. Every means has been taken to expedite deliveries, but even with excellent facilities for the handling of the great mass of orders which have reached us, very serious delays have occurred consequent upon the complications incidental to so great a demand. Many requests for colors, too, we have been forced to decline and the spirit in which these curtailments have been accepted has been most helpful in our effort to make a fair and just apportionment.

We are still adhering to our policy of supplying our customers with such colors as they have been using without advance in price.

Massachusetts, Charlton City. Some new construction work is being done at the lower mill of Akers & Taylor Mfg. Company.

TEXTILE FINISHING MACHINERY CO. OUTING

The third annual field day and outing of the Textile Finishing Machinery Co., Providence, R. I., was held at the Grover Club Grounds, Warwick, R. I., Saturday, August 15th, and was indeed an enjoyable occasion to all those privileged to attend and much credit is due to the two committees for the excellent program of arrangements, the very interesting list of sports which were greatly enjoyed, and the splendid manner in which they were carried out. The committees having charge of the affair were as follows: Outing Committee: T. C. Wetherauld, H. W. Honeyman, H. Marchant, J. J. McDonough, W. C. Heselwood and J. Dick. The Committee on Sports: W. Dyer, B. Warren, R. Burnham, D. Hull, G. F. Whitehead and J. Filber.

THE TEXTILE MACHINERY CO.'S OUTING

The party, including the guests, numbered about 200 and many expressions of satisfaction at the good time they were having were heard during the day. The party was conveyed to and from the grounds by special electrics.

The feature of the sporting events was the annual baseball game between crews from Factory A and Factory B. The game ended with a score of 9 to 5 in favor of Factory B. That and a program of races, tug of war, and other interesting sports, together with two substantial luncheons and a very elaborate bake at three o'clock, made up the full entertainment for the day.

The usual photograph was taken and the taking of it gave very much more enjoyment to those being taken than to the one performing at the camera, but after a few courtesies had been exchanged, the result desired was obtained and a reproduction of it is herewith presented.

The press was represented by Fibre & Fabric and the Textile World Record and we are glad to add our testimonial to a day most pleasantly spent.

HOME BLEACH & DYE WORKS OUTING

One of the events to which the employes of the Home Bleach & Dye Works, Pawtucket, R. I., look forward with great anticipation every year is their annual outing, which was celebrated this year on Saturday, August 1st, at Rocky Point, R. I., and if the program of sports and the menu participated in are any criterion, this particular occasion, which is the 12th in their history, may be voted a great success.

Rain fell early that morning but the sun shone brightly when the 300 employes and their friends gathered together. On arrival at the Point, where they were conveyed by special electrics, the party was met by the general manager, Edward J. McCaughey, and the treasurer, Peter B. McManus, who welcomed them and presented to them many opportunities for a day of great pleasure. A photograph of the party group was taken which we present herewith.

The day's program consisted of a series of athletic sports, which comprised football, baseball and a number of other lively sporting events which were enjoyed by everyone present. After the sports, the party marched to the dining hall where a very elaborate shore dinner, with all its trimmings and fixings, was served. A vote of thanks was extended by the employes to the officials of the plant who did so much to make the affair a pleasant one, long to be remembered.

THE HOME BLEACH AND DYE WORKS OUTING

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For cotton, worsteds and unions the Eur pean Finish No. 7, made by The Arabol Mfg. Co., 100 William St., N. Y. City, is highly recommended. It is odorless and gives excellent results in the padding machine, producing an exceptionally full feel.

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Massachusetts, Holyoke. It is reported that plans are being made for a new power house and dye house for the Germania Mills.

LARGEST ARMORY IN THE WORLD

The eighth coast artillery is looking forward to having the largest military building in the world as its home. Within two years, this impressive structure, which is already well advanced, will be ready for occupancy. The new armory is being built at Kingsbridge Road and Jerome Avenue on what was formerly the site selected by the city for the Jerome Park reservoir, but which was later abandoned. This large building will extend for 375 feet on Jerome Avenue and 600 feet on Kingsbridge Road, covering an area equal to 90 city lots. Eight thousand tons of steel have been employed in its superstructure. The roof will be of fireproof J-M Built-Up Asbestos Roofing on the flat portions and J-M Asbestos Ready Roofing on the steeper parts. The roof arches have the greatest span of any in the world. Only one building, one of those at the Chicago Exposition, ever had a greater and this has since been destroyed.

The drill floor will be of dirt surrounded by a cement walk. The total area will be 180,000 square feet, being the equivalent of three blocks long and a block and a half wide. This will also permit of the laying out of an indoor athletic field which will be the largest in the world. There will be room for a 220-yard straightaway running track. Several big fighting machines will be installed here by the government, a 10-inch breech loading disappearing gun, a 12-inch mortar and a 3-inch rapid fire gun, besides the usual fire control apparatus. The building will cost $1,000,000, and the completed structure will be one of which New York may well be proud.

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The American Moistening Co. are equipping the No. 2 Mill of the American Linen Co., Fall River, Mass., with a complete set of humidifiers.

A NEW SERVICE FOR MOTOR TRUCKS

Reports on the work of motor driven street springling apparatus discloses a remarkable story of economy over horses engaged in the same service. Hibbing, Minn., has a KisselKar sprinkling and flushing outfit which the city clerk states is doing work formerly requiring twenty-two horse teams. The truck, which is kept running twenty-four hours with three crew shifts, costs $27.00 a day, including maintenance, operation and wages, as against $121.00 a day for the horse drawn vehicles replaced by it. It has a record of covering seventeen blocks in twenty-one minutes, including time for two re-fillings.

The Graton & Knight Manufacturing Co., oak leather tanners and belt makers, of Worcester, Mass., have recently opened a branch at 301 Magazine St., New Orleans, La., to cover the territory of that state and the southern part of Mississippi, south of and including the cities of Jackson and Meridian, where they carry a complete line of leather belting, lace leather, belt dressing and cement. This branch is also equipped to handle all kinds of belt repair work promptly and satisfactorily. The above simply emphasizes the complete service organization of the "G & K" system. One of the strong features of "G & K" service is that they insist that every user of their belting be absolutely satisfied. To this end they will keep your belting in the best of condition and will give you the same considerate attention whether your orders are small or large. All "G & K Guarantees" cover price, quality, workmanship and service.

JENCKES SPINNING CO.'S OUTING

The first annual outing of the overseers, second hands and office-staff of the Jenckes Spinning Co., of Pawtucket, R. I., was held Saturday, Aug. 1, 1914, at the Warwick Club. The party left the mill at noon by special cars and on arriving partook of lunch. A baseball game had been arranged between the spinning and weaving and was finally won by the "Kinks and Knots" representing the spinning department. After the ball game a series of sports were enjoyed not only by the participants, but also by the observers, including quoit pitching and dash and trick racing. After the sports a real "Rhode Island Clam Bake" was served by Caterer Bohn, after which speeches were in order, appropriate remarks being made by George Fish, general superintendent, and George Martin, salesman. Among the invited guests were B. Benson of New Bedford, Mass., and Mr. Somerville of Lawrence, Mass. The committee in charge were J. Logan (chairman), F. Buckley (secretary), O. Siefeith (treasurer), S. Hildreth, G. Holdsworth, J. Robb, A. Willey and R. Nicholas.

THE JENCKES SPINNING CO'S OUTING

THE ILLUMINATING ENGINEERING SOCIETY

The eighth annual convention of the Illuminating Engineering Society will be held at Cleveland, O., Sept. 21 to 25 inclusive. There will be a number of papers read at this meeting, among which the following should prove of interest to textile manufacturers: Factory Lighting, by Hogue and Dicker; Planning for Daylight and Sunlight in Buildings, by Marks and Woodwell; Present Practice in Machine Shop Lighting, by Powell and Harrington; The Development of Daylight Glass, by E. J. Brady, and the Lighting of a Carpet Mill, by Rose and Ockley.

THE PATERSON STYLE SHOW

The Style Show, to be held in connection with the Paterson Exposition, Oct. 12-24, is of interest not only to those connected with the silk trade, but to the entire textile industry. It is particularly appropriate, just at this time, that there should be an exhibition of goods made in American mills, in gowns constructed by American costumers and worn by American models. It is a demonstration that might well be copied by the cotton and woolen mills, in an effort to show that we are not dependent on Europe for supplies.

The Paterson Style Show will not confine itself to gowns alone. It is expected that some very beautiful girdles will be shown, made of Paterson ribbons, the materials for which are already in the hands of the committee. Indeed, the silks are now being received every day, and there is no question that Paterson has every reason to be proud of her mills and their product. Another feature will be the showing of evening wraps, made from carefully selected materials from some of the best mills. Other novelties will be shown, which have not yet been made known to the public.

It is expected that a large number of buyers, as well as manufacturers, will attend the Exposition, and no effort is being spared to make the exhibition worth the careful attention of every attendant.

AUSTRALIAN WOOL AT THE PANAMA EXHIBITION

From the Sydney Mail

Australia is going to be well advertised at the Panama Exhibition at San Francisco, Cal. Those interested in preparing the wool exhibit say that it is going to be a very large and representative one—probably the best that has ever been sent abroad. It is not merely got together as a parade of Australia's resources, but as a practical advertisement among the wool users of America. So far as New South Wales is concerned, it will comprise fleeces of the new clip from almost every pastoral district of importance.

It is recognized that the time is singularly opportune to make a brave display of Australian wool in the United States and the Panama Exhibition enables this to be done far more effectively than would otherwise be possible. The Sydney Wool Selling Brokers' Association has the arrangement of the exhibit in hand, and is in a position to select representative fleeces for the display. The exhibit need not be completed until the end of the year, so there is ample time to get together a fine collection of up-to-date fleeces.

Prior to the removal of the duties America used only the lightest free wools, and consequently there is scope for advertising the other types produced, and the exhibit will embrace every class of wool that is grown in Australia, so that visitors to the show may realize the possibilities of extended direct trade with Australia. The display is likely to prove an advantageous advertisement so far as wool is concerned.

The National Textile Machinery Co., of North Paterson, N. J., was incorporated in Trenton under the State laws of New Jersey for $20,000 with $10,000 capital paid in. The company's shop is equipped with all up-to-date machinery for doing machine work of any description, and has employed only skilled mechanics. The shop is managed by Cay Buhl, who is one of the stockholders. Mr. Buhl is a mechanical engineer educated in Denmark. He has had wide experience in the designing and building of textile machinery, and was formerly with the United Piece Dye Works at Lodi, N. J.

TREASURY DECISIONS

T. D. 34670. July 30, 1914. Printed cloth for children's pinafores. Appeal directed from decision of the Board of United States General Appraisers of June 17, 1914, Abstract (T. D. 34571), involving the classification of cotton cloth printed with designs suitable for making children's pinafores.

T. D. 34688. August 6, 1914. Drawback on binder twine manufactured by the Peoria Cordage Co., of Peoria, Ill., with the use of imported degras.

T. D. 34710. August 18, 1914. Drawback on underwear. Drawback on men's underwear manufactured by the Union Mills of Hudson, N. Y., with the use of woven material manufactured in part from imported cotton yarn.

T. D. 34714. August 20, 1914. Drawback on incandescent mantles. T. D. 30973 of October 4, 1910, amended with respect to the quantities of the imported ramie thread used in the manufacture of incandescent mantles.

T. D. 34719. August 19, 1914. Drawback on clothing. Drawback on clothing manufactured by the B. Kuppenheimer & Co., of Chicago, Ill., with the use of various imported materials.

*Pennsylvania, Allentown. John G. Diefenderfer, referee, has sent a notice to creditors of Laura A. Steltz, trading as the Alpha Knitting Company, of a first and final dividend of .109 to creditors who have proved their claims. The plant was taken over by other parties several months ago.

Pennsylvania, Bangor. Owing to the volume of orders received the Sterling Silk Glove Company are compelled to cut down their annual vacation for the employes from two weeks to one. They report the outlook as very favorable.

Recent Textile Patents

BLEACHING and Scouring Fibrous Materials, Apparatus for. 1,107,160. John Macadam, Chester, Pa.

BOBBIN. 1,105,289. Frank Mossberg, Attleboro, Mass.

DRYING APPARATUS, Fabric. 1,107,162. Joseph A. Firsching, Utica, N. Y.

DYEING APPARATUS. 1,105,845. Joseph Schmitz, Philadelphia, Pa.

DYEING MACHINE, Beam. 1,107,095. Frank M. Morton, Phenix, Ala.

DYEINGS on the Fiber, Producing. 1,107,164. Richard Herz, Frankfort-on-the-Main, Germany.

DYEING VEGETABLE Fibers. 1,105,722. Joseph Turner, Huddersfield, Eng.

FABRIC CLAMP. 1,106,136. Frank A. Donnelly, New York City.

KNIT ARTICLE and Making the Same. 1,106,336. Alonzo E. Rhoades, Boston, Mass.

KNITTED COLLAR for Vests and Coats. 1,105,407. Frank G. Curtis, Milwaukee, Wis.

KNITTING MACHINE. 1,106,763. Frank B. Wildman, Norristown, Pa.

KNITTING MACHINE, Circular. 1,106,764. Frank B. Wildman, Norristown, Pa.

KNITTING MACHINE, Circular French Welt. 1,105,735. Frank B. Wildman, Norristown, Pa.

LOOM LET-OFF. 1,105,587. Abel E. Chernack, Providence, R. I.

LOOM LET-OFF Mechanism. 1,105,335. William J. Lutton, Paterson, N. J.

LOOM SHUTTLE Adjusting Mechanism, Weft-Changing. 1,105,146. Charlie G. Lavigne, Brunswick, Me.

LOOMS, Automatic Weft-Bobbin-Exchange Device for. 1,106,716. Albert G. Koechlin, Basel, Switzerland.

LOOMS for Weaving Cloth, Crank and Tappet Shaft of. 1,105,648. John G. Gregson, Fulwood, near Preston, Eng.

LOOMS, Thread Cutting Mechanism for Weft-Replenishing. 1,104,880. Eduard Egli, Ruti, Switzerland.

LOOMS with Fixed Reeds, Automatic Stopping Device for Power. 1,104,951. Johann J. Zubler, Brombach, Germany.

SHUTTLES, Device to Facilitate Threading. 1,105,733. John D. Whyte, Manchester, Eng.

SILK FABRICS, Equalizing Device for. 1,106,704. Heinrich Goldberh, Crefeld, Germany.

SPINNING FRAMES, Device for. 1,104,881. James D. Ezell, Burlington, N. C.

SPINNING FRAMES, Saddle for the Top Rolls of. 1,104,932. Ross L. Reynolds, Fall River, Mass.

SPINDLE DRIVING Mechanism. 1,105,529. Albert E. Newton, Worcester, Mass.

SPINNING FRAME Tension Device. 1,106,280. Robert G. Carle, Woonsocket, R. I.

SPOOLERS, Tension-Controlling Means for. 1,105,969. Peter H. Donnelly, New Bedford, Mass.

THREAD CUTTING Apparatus. 1,104,848. Alois Tscherne, Roeschach, Switzerland.

THREADS from a Warp, Apparatus for Successively Separating Single. 1,105,867. Max Wenzel, Spremberg, Germany.

UNDERGARMENT, Ladies'. 1,106,663. Laurance Mayer, New York.

UNDERGARMENT, Union. 1,105,701. Michael F. Robischon, Utica, N. Y.

UNDERWEAR. 1,106,133. Robert S. Cooper, Kenosha, Wis.

UNION SUIT. 1,105,677. William Marlow, New York.

UNION SUIT. 1,106,310. George W. Kelly, Chicago, Ill.

WEAVING and the Like, Making Strips for. 1,105,309. Leopold S. Samuel, Newark, N. J.

WINDER, Cop. 1,105,151. James F. MacWilliam, Worcester, Mass.

WINDING MACHINE. 1,105,453. Anker Petersen, Winthrop, Mass.

WINDING MACHINE. 1,104,840. Herbert E. Smith, Manchester, N. H.

TRADE MARKS RECENTLY FILED FOR REGISTRATION

69,983. Neckscarfs. Mark: I. D. W. Indestructo. Owner: Isadore D. Wolfson, New York.

77,066. Woolen piece goods. Mark: Zepho. Owner: Jno. E. Magerl & Co., Camden, N. J.

78,354. Cotton and silk crape goods. Mark: CeKay. Owner: M. Kurzmans Sons, New York.

79,303. Suits, dresses, waists, etc. Mark: Panard. Owner: The Panard Co., New York.

79,313. Cotton piece goods and dress goods. Mark: 10000 Range. Owner: Amoskeag Mfg. Co., Manchester, N. H.

79,314. Cotton piece and dress goods. Mark: 21000 Range. Owner: Amoskeag Mfg. Co., Manchester, N. H.

79,316. Cotton piece and dress goods. Mark: Crenelle. Owner: Amoskeag Mfg. Co., Manchester, N. H.

79,393. Blouses and dresses. Mark: Carlot. Owner: Carl Strauss, Paris, France.

79,397. Lace curtains. Mark: Duo Loom Lace Curtain. Owner: Patchogue Mfg. Co., New York.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

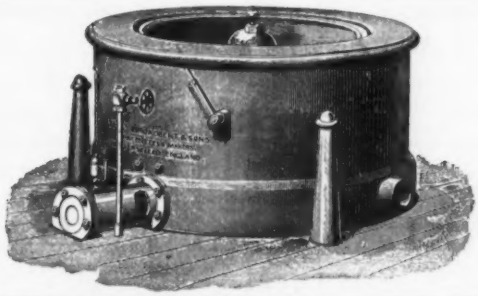
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

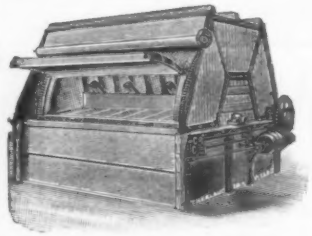
OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS.

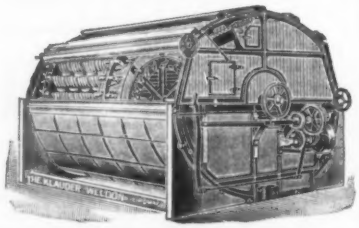
C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTH'S TRIAL
YOU
TAKE
NO
RISK

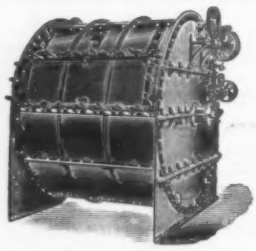


SKEIN AND SLUBBING MACHINE.

KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

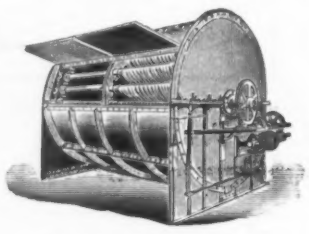
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

YOU SHOULD TRY GARLAND RAWHIDE LOOM PICKERS

We can conceive of no greater care being employed in the manufacture of any product than the care with which our rawhide loom pickers are made. *From the hide to the finished picker* the work is carefully watched and nothing is allowed to pass which is not up to *the high standard which we require*. We are sparing neither pains nor expense not only to maintain this high standard of quality for which our pickers are known, but to still further improve them.

GARLAND MFG. CO.
SACO, MAINE

TRADE MARK

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Charles T.
Myrick, J. W. H.

Asbestos Covering.
Johns-Manville Co., H. W.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Autophones.
Couch, S. H., Co., Inc.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Mch. Co.
Woonsocket Machine & Press Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Smith & Furbush Mch. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
Hess-Bright Mfg. Co.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Baskets.
Diamond State Fibre Co.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Crompton & Knowles Loom Works.

Belting.
Bond, Charles, Co.
Gandy Belting Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
——See also Mill Supplies.

Belting, Leather.
Graton & Knight Mfg. Co.

Belting, Link.
Graton & Knight Mfg. Co.

Belt Cement.
Graton & Knight Mfg. Co.

Belt Dressing.
Graton & Knight Mfg. Co.
Stephenson Mfg. Co.

Belt Lacing, Leather.
Graton & Knight Mfg. Co.

Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Machine Works.
Birch Bros. (Albert Birch, prop.)
Buhlmann, A. W.
New England Tank & Tower Co.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.
Worden Chemical Works.

Blowers and Blower Systems.
Autoforce Ventilating System.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Kunze, Otto.
Leigh & Butler.
Mossberg, Frank, Co.
Parker Spool & Bobbin Co.
Tebbets, E. L., & Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Books.
Chittick, James.

Boxes, Box Shooks, Etc.
Diamond State Fibre Co.
Pearson, J. T.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Cocker, M., & Co.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Brushing Machines.
Buhlmann, A. W.
Parks & Woolson Machine Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button-Hole Machines.
Reece Button-Hole Machine Co.

Button Sewing Machines.
Union Button Sewing Co.

Calico Printers' Machinery and Supplies.
Arlington Machine Works.
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
——See also Dyeing, Drying, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
Am. Textile Specialty Mchy. Co.

Carbonizing Machinery.
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Buhlmann, A. W.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Buhlmann, A. W.
Dronsfield Bros.
Firth, William, Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Smith & Furbush Machine Co.

Card Leather.
Graton & Knight Mfg. Co.

Carding Machinery.
Saco-Lowell Shops.
Smith & Furbush Mch. Co.

Card Stampers and Repeaters.
Hodgson, Walter W.

Carpet Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.

Carrier Aprons.
Graton & Knight Mfg. Co.

Castings.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Lunkenheimer Co., The.
Schofield, Wm., Co.
Mohn, Wm. H.

Caustic Soda.
Wing & Evans.

Cell Driers.
Cutter, Geo. A.

Cement Pans.
Scaife, W. B., & Sons.

Chain Belts.
Morse Chain Co.

Chemists.
Little, Arthur D., Inc.
Lunkenheimer Co., The.

Chenille Machinery.
Eppler's, John, Machine Works.

Clocks.
Pettes & Randall Co.
Watchman's Clock & Supply Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.
Textile-Finishing Machinery Co.

Cloth Cutting Machines.
Eastman Machine Co.
Firth, William, Co.
Oswego Machine Works.
Weinerth Knitting & Machine Co.

Cloth Dryers.
——See Drying Machinery.

Cloth Expanders.
Arlington Machine Works.
Birch Bros. Somerville Machine Wks. (Albert Birch, prop.).
Leyland, Thomas, & Co.
Somerville Mach. Wks. (Albert Birch, prop.).

Cloth Shrinking Machinery.
Reliance Machine Works.

Alphabetical Index to Advertisers, with page numbers, follows this list.

Cloth Testers.
Perkins, B. F., & Son, Inc.

Cloth Winders.
Firsching, J. A.
Parks & Woolson Machine Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Coal Analysis.
Little, A. D., Inc.

Cold Sawing Machine.
Burr & Son, John T.

Comb Aprons.
Graton & Knight Mfg. Co.

Combs (Wool and Cotton).
Crompton & Knowles Loom Works.
Firth, William, Co.
Hood, R. H., Company.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Commercial Vehicles.
Kissel Motor Car Co.

Compressors (Air).
Allis-Chalmers Mfg. Co.

Condensers.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.

Cones (Paper).
Am. Textile Specialty Mchy. Co.
Fairpoint Corporation.

Conditioning and Testing.
U. S. Conditioning & Testing Co.

Conveying Systems.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Coolers (Air).
Power Specialty Co.

Cop Machinery.
Eppiers, John, Mach. Works.

Cop Tubes.
Am. Textile Specialty Mchy. Co.
Fairpoint Corporation.
——See Paper Tubes.

Copper Expansion Joints.
Badger, E. B., & Sons Co.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.
Textile-Finishing Machinery Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

Corduroy and Velvet Cutting Machines.
Firth, William, Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

Cotton.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Cotton Dryers.
——See Drying Machinery.

Cotton Machinery.
Am. Textile Specialty Mchy. Co.
Ashworth Bros.
Barber-Colman Co.
Brown Spin-Wright Cotton Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Fales & Jenks Mch. Co.
H. & B. American Machine Co.
Klauder-Weldon Dyeing Mch. Co.
Leigh & Butler.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Potter & Johnston Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco-Lowell Shops.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile-Finishing Machinery Co.
Textile Machinery Co.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Potter & Johnston Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco-Lowell Shops.

Cotton Softeners.
Bosson & Lane.
Harding & Fancourt, Inc.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.

Cotton Waste Machinery.
Firth, William, Co.
Saco-Lowell Shops.
Smith & Furbush Mch. Co.

Counting Machines.
Durant Co., W. N.
Root, C. J., & Co.

Couplings (Flexible-Insulated).
Bond Co., Charles.

Crayons.
American Crayon Co.
Lowell Crayon Co.

Cutting Machines.
Eastman Machine Co.
Firsching, J. A.
Oswego Machine Works.
Perkins, B. F., & Son, Inc.
Weinerth Knitting & Machine Co.

Cylinder Oil (Superheated Steam).
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Rundle-Spence Mfg. Co.

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Birch Bros., Somerville Mach. Wks.
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Hunter, Jas., Machine Co.
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Philadelphia Textile Machinery Co.
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Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Sturtevant, B. F., Co.
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

Dusters.
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Dust Collectors.
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Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

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Peerless Co.
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Arlington Machine Works.
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Birch Bros., Somerville Mach. Wks.
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Butterworth, H. W., & Sons Co.
Curtis & Marble Machine Co.
Cutter, Geo. A.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
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Hunter, James, Machine Co.
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Hill, James, Mfg. Co.

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Dye Sticks.
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Van Brunt, J. A., & Co., Inc.
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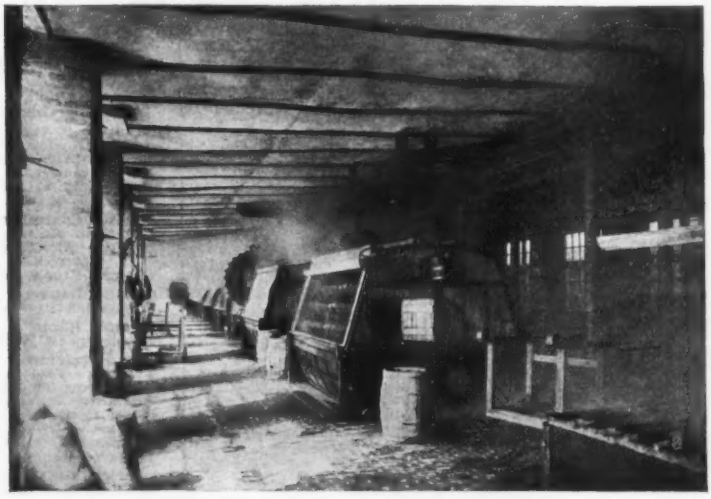
A Dye-House with a Clear Atmosphere



DYE-HOUSE OF BIGELOW CARPET COMPANY
System Designed by Mr. Charles T. Main, Boston

This is an actual photograph, not retouched, taken in the dye-house of the Bigelow Carpet Company, at Lowell, Mass., *under operating conditions and with all windows closed.*

Sturtevant REG. U. S. PAT. OFF. **Heating and Ventilating Apparatus**

and a well designed system are responsible for the results.

There is no fog or steam in the air, no condensed steam on the ceiling and windows, because the *moisture is removed* by an abundance of warm air supplied to the dye-house.

If you have a dye-house, a paper mill or any room in which steam fogs the atmosphere and condenses on the ceilings and walls, install STURTEVANT APPARATUS and secure results like the above.

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Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

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Allis-Chalmers Mfg. Co.
General Electric Co.

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Allis-Chalmers Mfg. Co.
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Salem Elevator Works.

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Power Specialty Co.
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Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

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American Water Softener Co.
Scaife, W. B., & Sons.

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Hunt, Rodney, Machine Co.
Smith & Furbush Machine Co.

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Old Colony Foundry & Fence Co.

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Case Brothers.

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Hungerford & Terry.
Norwood Engineering Co.
Permutit Co.
Scaife, W. B., & Sons.

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Finishing Machinery.
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Johns-Manville Co., H. W.

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Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

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Hunter, James, Mach. Co.
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Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

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Parks, G. M., Co.

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Sauquoit Silk Mfg. Co.

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Halton's, Thomas, Sons.

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Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

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Spindler, E. O.
Union Special Machine Co.

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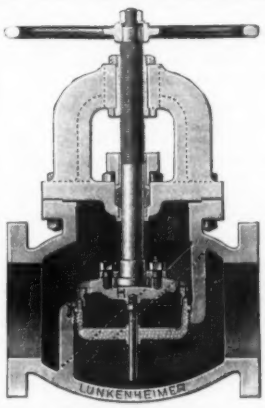

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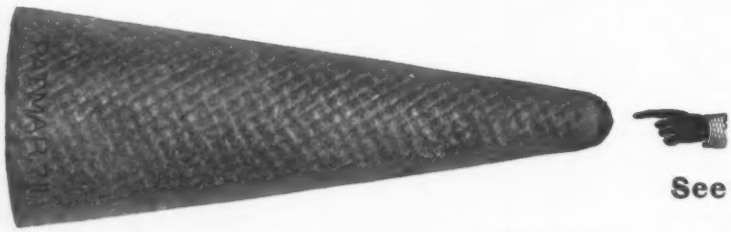

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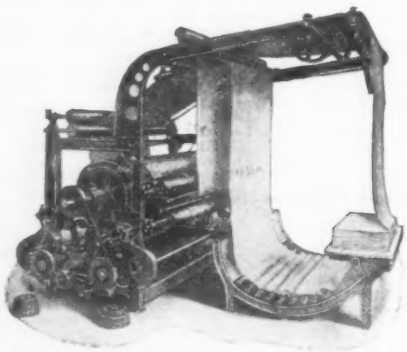

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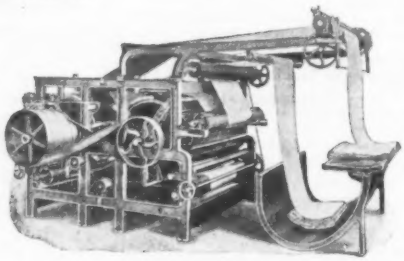

Two Cylinder Six Contact Gig

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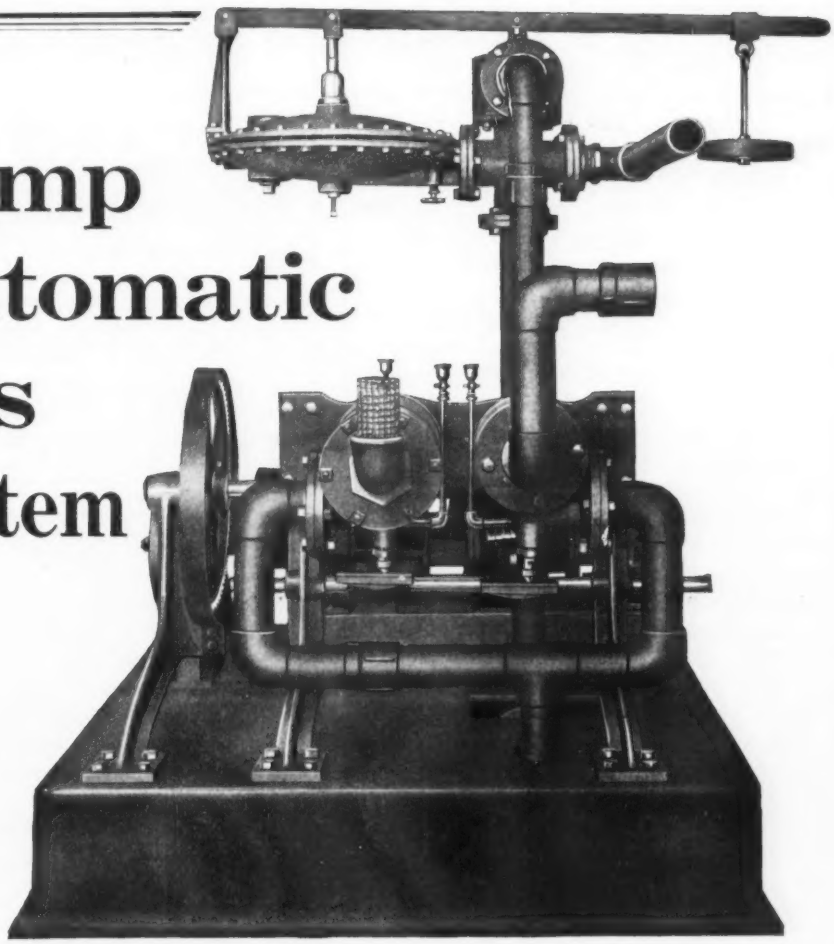

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Publishers' Page

Special Notice to Those Who Sell Equipment or Supplies to Textile Mills

The National Association of Cotton Manufacturers will hold its 96th annual meeting at Hotel Aspinwall, Lenox, Mass., September 29th and 30th.

The October issue of the Textile World Record will be one of unusual value to all who have products to sell to textile mills in general, and cotton mills in particular, for that issue will contain a comprehensive, illustrated story of the Convention as well as report the papers that are to be read.

Therefore, the October issue will be unusually big both in editorial and advertising matter.

In addition it will have an increased circulation. Because of the importance of the event this issue will be frequently referred to, thus giving the advertising additional value.

Take advantage of this opportunity to tell your prospective customers in a big, impressive way how you can help them increase the quantity or the quality of their production through the use of what you have to sell.

Some of our regular advertisers have already ordered increased space for this issue and some of our occasional advertisers have also sent in their reservations.

Kindly advise us promptly what space you want to use so that provision can be made for giving you good service, as the available space is, of course, limited.

—÷—

Change of Address

Subscribers are requested to notify us in writing before the 5th of the month of any change of address desired, as that is the date on which our mailing lists close for the current month. If we do not receive notice of the change until after the 5th, that month's issue will go to the old address and may require postage for reforwarding.

It sometimes happens that because a news item has been published to the effect that he has moved from one mill to another, a subscriber thinks that his address will be changed automatically without any instructions from him and he will sometimes write to the effect that we knew he had moved because we had published an item about it and he does not see why his magazine was not sent to his new address. He forgets that the subscription department is entirely separate from the news department and has 6,000 names to look after and can hardly be expected to search the news columns for possible changes of address, and even if it did, it would not be proper to make changes unless ordered or authorized by the subscriber.

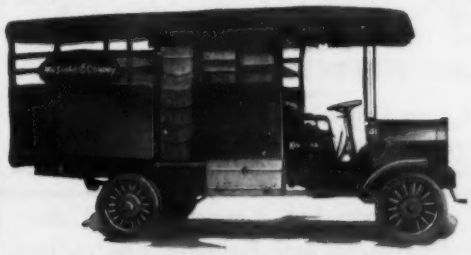
Please, therefore, be considerate, for your own sake as well as ours, and advise us promptly and definitely when changing your address. It helps us very much if your old address is given, as well as your new address stated clearly.

—÷—

Monthly Circulation Statement

Of this edition over 6,200 copies are printed and all are needed.

The circulation of the Textile World Record has heretofore been audited by the Association of American Advertisers, but as this Association has been merged with the new Audit Bureau of Circulations, of which the Textile World Record is also a member, the new Bureau, which is composed of advertisers and publishers, will hereafter audit our circulation records. And all of our circulation statements will continue to be guaranteed and made a part of each advertising order. Our books are always open to any association, agent or any present or prospective advertiser, who wishes to investigate our circulation figures.



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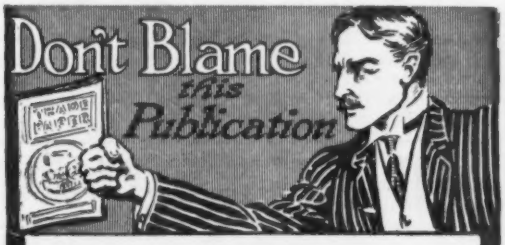

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6272, Textile World Record, Boston, Mass.

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6274, Textile World Record, Boston, Mass.

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6275; Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on woolen, worsted and cotton; familiar with Knowles, Crompton and jacquard looms; 50 years of age, married; will not go West, South or to Canada; good reference.
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6281, Textile World Record, Boston, Mass.

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Fixer or Foreman of Knitting in hosiery mill; has worked on wool, worsted, cotton, mercerized, pure and artificial silk, in fact all styles; familiar with Scott & Williams, Banner, Standard, Geo. D. Mayo, Acme, Brinton and Wildman knitting machines, also ribbers and loopers; 26 years of age; good reference.
6264, Textile World Record, Boston, Mass.

Wool or Worsted Designer; would consider position as assistant superintendent or general assistant; has worked on woolen and worsted men's wear, ladies' dress goods, beavers, meltons, chinchillas, mackinaws, piece dyes, army and navy serges, tunics, steamer rugs, cashmerettes, etc.; familiar with all makes of machinery; 24 years of age; good reference.
6265, Textile World Record, Boston, Mass.

Sewing Machine Fixer; would consider position as overseer of finishing and machine fixer in small mill; familiar with all American makes of machinery; 40 years of age; good reference; will not go to Mass., R. I., Conn., Me., N. H., Vt. and N. J.
6266, Textile World Record, Boston, Mass.

Fixer or Foreman in hosiery mill; has worked on mercerized, cotton and silk; familiar with Acme, Mayo, Jenckes, Wildman, Brinton ribbers; Hepworth and Record loopers and Union Special and Merrow sewing machines; 24 years of age; good reference.
6267, Textile World Record, Boston, Mass.

Superintendent of cotton mill; would consider good paying position as overseer of ring spinning; has worked on white and colored yarns, 3s to 60s; familiar with Saco & Pettee, Lowell and Draper twisters; 42 years of age, married; will not go to Conn., Pa., N. Y., N. J., West, South or to Canada; good reference.
6268, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on all kinds of dress goods, men's wear, serges, unions, rain proofed cloths, mohairs, linings, slubbing, raw stock and yarns; familiar with all kinds of dyeing machinery; 37 years of age; married; good reference.
6269, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on piece dyes, raw stock, wool and silk noils, worsted yarn, silk resist, developed cotton and some direct cotton; familiar with all makes of dyeing and drying machinery; 30 years of age; married; will not go to Pa., West, South or to Canada; good reference.
6270, Textile World Record, Boston, Mass.

Overseer of Dressing in woolen mill; has worked on shoddy, wool, both fine and coarse, cotton, cotton worsteds and all grades of straight worsteds, both wet and dry; familiar with Davis & Furber and Cleveland Pipe machines; skeleton frames of all kinds and also cylinder machines; 38 years of age, married; will not go to Vt., West, South or Canada; good reference.
6271, Textile World Record, Boston, Mass.

Overseer of Knitting or looping in hosiery mill; has worked on boy's, children's, men's and women's hose, both soft and mixed yarn; familiar with Acme, Mayo, Jenks, Standard, Boss, Keystone, and all classes of ribbers and loopers; 34 years of age, married; will go West and South; good reference.
6180, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on dress goods, men's wear, etc., using all wool, cotton and shoddy mixes, both high and low grade stock; spinning yarn from 7/8 run to 8 run; familiar with Davis & Furber and Johnson & Bassett machines; 32 years of age, married; will not go to Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6181, Textile World Record, Boston, Mass.

Master Mechanic or factory inspector; 42 years of age, married; will not go West, South or to Canada; good reference.
6186, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on high and low grade goods, raw stock, piece dyeing, all wool and union carbonizing; 34 years of age, married; will not go to Me., Pa., N. Y., N. J., West, South or to Canada; good reference.
6187, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on woolens and worsteds; familiar with Crompton & Knowles looms; 30 years of age; good reference.
6188, Textile World Record, Boston, Mass.

Agent or superintendent in woolen mill; has worked on all kinds of men's and women's wear including chinchillas; familiar with jacquards and all kinds of woolen and worsted machinery; 50 years of age, married; good reference.
6192, Textile World Record, Boston, Mass.

Overseer of Cotton Carding, boss comber or second hand; has worked on all classes of goods from very low grade Russian cotton to fine Egyptian and Sea Island cotton; familiar with Dobson & Barlow, Howard & Bullough, Platt Bros., Whitin, etc., machines; 25 years of age; good reference.
6193, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; would consider good second hand position; has worked on all wool, low stock, cotton and silk noil and cotton and wool; familiar with Davis & Furber, Johnson & Basett and Paul mules; 38 years of age, married; will not go to Me., Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6194, Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on anything in the line of cotton goods; familiar with almost any kind of machinery; 45 years of age, married; will not go West, South or to Canada; good reference.
6247, Textile World Record, Boston, Mass.

Assistant Agent, superintendent or assistant superintendent in cotton mill; would consider good mechanical position in cotton mill also; has worked on sheetings, domets, flannels, table felts, mole skins, ounce goods, etc.; familiar with carding, spinning and weaving machinery; 28 years of age, married; good reference.
6248, Textile World Record, Boston, Mass.

Assistant Superintendent of carpet mill; has worked on worsted and woolen yarn manufactured from bale to finished yarn; also all classes of carpet wools; will go anywhere for a good position; 26 years of age; good reference.
6249, Textile World Record, Boston, Mass.

Overseer of Plush Finishing; has worked on plush, velvets, seals and beavers; familiar with plush and velvet finishing machines, all classes; 50 years of age; will go anywhere for a good position; good reference.
6250, Textile World Record, Boston, Mass.

Designer in Cotton Mill or boss weaver and designer; has worked on cotton, silk and worsted dress goods, jacquards, damasks, table covers, bed spreads, narrow fabrics, dress and corset trimmings, elastic goods, silk labels and belt covers; familiar with jacquard and dobby looms; understands fixing and tying up of jacquard harness cutting cards; warp dressing and long chain beaming, also finishing of cotton goods; 42 years of age, married; will not go to Canada; good reference.
6251, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen or worsted mill; has worked on all kinds of woolen and worsted goods; familiar with all kinds of finishing machinery; 50 years of age, married; will not go West, South or to Canada; good reference.
6252, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on all grades of raw stock, wool, shoddy, cotton and silk; piece dyes, heavy and light worsteds, dress goods, unions, chinchillas and worsted yarns; understands the principles and advantages of most dyeing machines; 27 years of age; good reference.
6253, Textile World Record, Boston, Mass.

2800 KISSELKAR TRUCKS

A. S. Robinson of the Pacific KissellKar Branch at Los Angeles, in commenting on the fact that his city has now 2800 motor trucks in service, estimated that within five years power-driven vehicles will be carrying practically all the heavy freight delivered within the boundaries of that city.

"There is not a firm here which, having given the truck a fair trial, would think of returning to horses," says Robinson. "I have heard business men say that they would as quickly throw out their telephones and typewriters as to give up their trucks."

FACTS AND GOSSIP.

New York, Waterford. The building of the Waterford Woolen Co., which was recently burned, is being rebuilt and remodeled by Richard Hartnett, who recently purchased it.

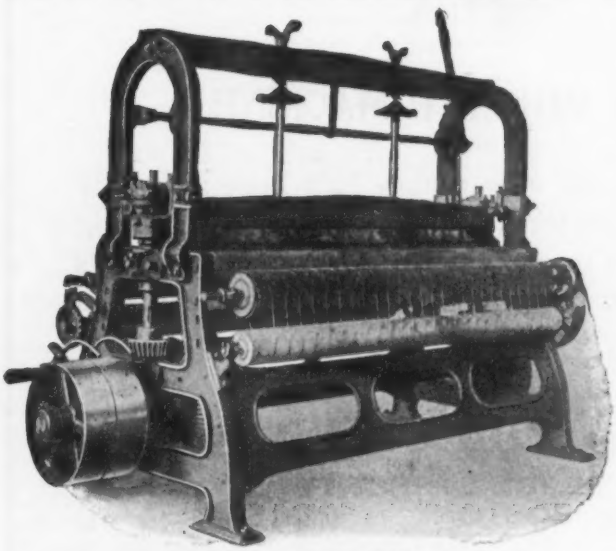
North Carolina, Charlotte. C. W. Johnston, president of the Highland Park Mfg. Company, with a mill at Charlotte and a branch plant at Rock Hill, S. C., has announced that his mills will run on full time from now on. Mr. Johnston has just returned from a trip during which he observed conditions and looks forward to a better market.

North Carolina, Raeford. The dam and power plant on Rock Fish Creek, built by the Raeford Power & Mfg. Co., has been completed and the cotton mill at Raeford is now being operated by electric power. Seven hundred h. p. is developed. It is expected that with this power development completed attention will be given to plans for enlarging the cotton mill, but it is unlikely that any enlargement will be made this year.

North Carolina, Raleigh. The North Carolina Textile School at West Raleigh, a department of the North Carolina A. & M. College, which was destroyed by fire last March, has been rebuilt and will be ready for the reopening of the school in September. It is stated that experts of the U. S. Government will again conduct a series of experiments on the standard grades of cotton in cooperation with the instructors.

*Oklahoma, Tulsa. The proposed cotton mill company being organized to establish a mill at Sand Springs has been chartered with authorized capital stock of $2,500,000. Geo. R. Salisbury, Lake Winola, Pa., is president. Chas. Page, one of the men interested, has given a 20-acre site and preliminary plans have been made for several buildings to be of Fenestra construction to cost about $250,000. The equipment mentioned includes 100,000 spindles and 2,500 looms. The buildings, it is said, include the following: One two-story mill, 450 by 140 feet; a four-story mill, 500 by 130 feet; a three-story mill, 600 by 250 feet, and a one-story mill, 300 by 150 feet. If the present plans are followed work will be started on the buildings about the first of September. This enterprise is being promoted in connection with a land development project at Sand Springs.

CHINCHILLA MACHINE



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Tentering and Drying Machines, Crabbing Machines, Cloth Washers, Whipping Machines, Etc.

For producing
the following finishes:

Chinchilla
Petersham
Ratine
Crepe and
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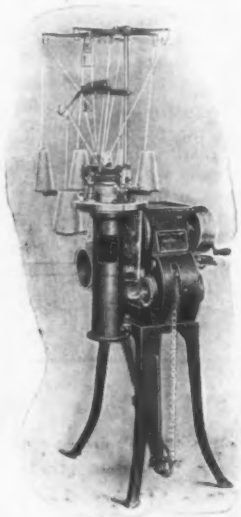
Manufactured by
D. R. Kenyon & Son
Raritan, N. J.

Here's the Machine that Saves 7 to 15 Cents a Dozen

On the Manufacturing Cost of Half Hose



IMPROVED MODEL F MACHINE

Our Model F Machine not only makes half hose automatically, dropping them from the machine, and effecting a saving of from 7 to 15 cents per dozen, but **will also make women's stockings** with a knitted turned welt, **saving time, waste** and consequently **money.**

Established 1805

SCOTT & WILLIAMS, INC.

88 PEARL STREET
BOSTON

NEW YORK PHILADELPHIA UTICA

KNIT.

.....

New Mills.

Canada, Ontario, Kincardine. William Mitchell is interested in establishing a small knitting plant here for the manufacture of wool half hose. It will probably be several months before arrangements are completed.

*New Hampshire, Nashua. Honore Caron, 15 Gilman St., who it was reported previously would install knitting machines for manufacturing stockings, sweaters and other knit goods in a building which he has constructed, has purchased some of his equipment.

*New York, New York City. The Philmar Knitting Company, Inc., recently organized, will manufacture knitted neckwear, and silk and wool sweater coats at 35 6th Ave.

*North Carolina, Beaufort. The branch plant to be established here by the Orion Knitting Mills of Kinston, will start manufacturing about October 15 with 60 operatives, making misses' hosiery. A frame building is to be put up and later, if conditions are satisfactory, a brick mill will be built. Dr. H. Tull is president and J. F. Taylor is treasurer and superintendent.

Pennsylvania, Boyertown. The new mill of the Allen Knitting Co., to be established in Boyertown, will be located in a building 40 by 150 feet, three stories and basement, which will be equipped with machinery for the manufacture of women's vests and operated by electricity. This plant will be operated as a branch of the main mill at 11th and Westmoreland Sts., Philadelphia, where they are operating a large number of machines on ladies', misses' and children's ribbed underwear, etc., selling the production direct.

*Pennsylvania, Girardville. Charles H Heine, who took over the knitting plant of H. A. Trautman in Tower City, has moved the machinery to a building on Second Street, Girardville, and will begin manufacturing September 1, under the name of the Girardville Knitting Mills. Lines of ladies', misses', infants', men's and boys' underwear will be made using 24s and 26s yarn and the equipment will be increased to 13 knitting machines and 17 sewing machines. Webster R. Heine, the son of Charles H. Heine, is associated with him in the new business and will be superintendent. Charles H. Heine will attend to the buying.

*Pennsylvania, Newcastle. About $70,000 of the capital of $100,000 has been subscribed for the Newcastle Hosiery Mills. The concern will manufacture hosiery and other knitted fabrics and will have a steam power plant and dyeing and finishing departments. W. H. Grove is treasurer.

*Pennsylvania, Philadelphia. The new plant for the manufacture of sweater coats to be started up by N. Neuman, it is said will be located at 23rd and Arch Sts. The equipment has already been purchased and is awaiting installation.

Pennsylvania, Reading. E. B. Miles has started up a small plant at 1613 Hawk St., in which he is manufacturing seamless cotton half hose, running his machinery by electric power and selling the production in the grey to other manufacturers.

*Pennsylvania, Reading. A mill in Reading is to be leased by Thomas M. Johnson before the end of the year and he will begin the manufacture of ladies' hosiery in a small way, installing more machinery as the business warrants. Mr. Johnson has had eighteen years' experience in the manufacture of hosiery. Arrangements for space have not been made and details of the new plant have not been worked out. Mr. Johnson's address is 216 1/2 Spruce St., Reading.

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Enlargements and Improvements.

*California, Los Angeles. Before October some additions will be made at the plant of the Graham Knitting Co., Inc., corner of Boston and Ash Sts., bringing the equipment up to 7 knitting machines and 8 sewing machines. In the spring a further enlargement will be made. This company manufactures men's, women's and children's sweater coats in wool, silk, worsted and cotton, and the business was recently incorporated with capital stock of $15,000. William Duelks is president, treasurer and buyer. The post office address is R. F. D. 12, Box 47, Los Angeles.

*Canada, Ontario, Ingersoll. The equipment recently added to the plant of Thos. Waterhouse & Co., Ltd., gives them a total equipment of three sets, 17 knitting machines and 30 sewing machines. They are making ladies' and men's knit underwear. Thos. Waterhouse is the president and buyer.

Canada, Ontario, Dundas. Two sets of cards with complementary spinning machinery have been installed in the old woolen mill here by the Mercury Mills, Ltd., of Hamilton, manufacturers of hosiery and underwear.

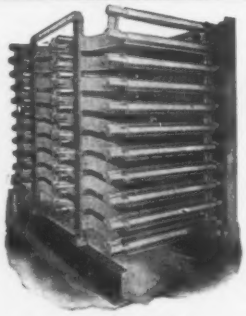
Connecticut, Windsor Locks. The building of wooden construction used as a dyeing department by the Medlicott Company, Inc., is being replaced with a brick building of larger dimensions. This concern recently completed the addition of another story to the brick storehouse. Full fashioned and flat underwear for women and children of wool and worsted is manufactured.

Louisiana, New Orleans. An addition is to be erected to the plant of the Alden Mills, manufacturers of hosiery at a cost of $18,000.

*Maryland, Frostburg. Twenty new machines have been installed in the local plant of the Parker Hosiery Mill and Dye Works and they expect to make further increases in the near future.

*Maryland, Hagerstown. Plans for the rebuilding of the Windsor Knitting Mills are progressing. The plant was burned several weeks ago with loss estimated at about $100,000. Men's fine seamless half hose was manufactured. H. J. Crosson is superintendent.

*Maryland, Hagerstown. The new plant of the Antietam Knitting Company to be constructed to replace the plant recently struck by lightning and burned will be 3 stories high, 50 by 120 feet. Preliminary work toward the erection of this mill has been started.



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is recognized as the most modern and efficient drier on the market.

It is used by the leading finishers because it operates at the highest speeds and at low cost. It saves steam, power and space. Let us tell you more about it.

GEO. A. CUTTER, Sales Agent

Successor to CELL DRIER MACHINE CO., Taunton, Mass.

CURTIS & MARBLE MCH. CO.

WORCESTER, MASS.

FEARNAUGHT PICKER

Wool Burring and Picking Machinery

Cloth Finishing Machinery

FACTS AND GOSSIP.

Massachusetts, Whitinsville. A fire in the picker room of the Whitinsville Cotton Mills caused a small loss on cotton and machinery. It is estimated at about $100.

Mississippi, Magnolia. The Magnolia Cotton Mills, manufacturers of grey convertible goods, are considering installing a number of dobby looms.

Missouri, St. Louis. Local real estate men are urging manufacturers to establish a cotton mill here. The Business Men's League has taken up the matter and in some quarters it is thought that the organization of a company will shortly be started. A. F. Versen, industrial commissioner of the Business Men's League, reports that there is a movement under way to encourage the cotton mill industry in St. Louis, and states that it is reasonable to look forward to the organization of a cotton manufacturing company in St. Louis. There is nothing definite to be said at this time concerning the project, however.

Minnesota, Minneapolis. The Sherlock M. Merrill Company has been incorporated with capital stock of $50,000 to manufacture textile goods. The incorporators are Sherlock M. and Sherlock S. Merrill, and Foster R. Lasley. The Sherlock Merrill Company is now engaged in a commission selling business, handling woolen goods and batting, and Sherlock M. Merrill is president of the American Kersey Company, Inc., of Litchfield, Minn.

New Hampshire, Goff's Falls. Spinners employed by the Devonshire Mills, who left their work last week after making certain demands concerning a guaranteed wage, have returned to their machines. It was said at the mills that the differences had been adjusted to the satisfaction of both sides and that work was going on as usual in all departments.

*New Jersey, Paterson. The Diamond Silk Company, recently incorporated with capital stock of $150,000, succeeds the business of the Diamond Silk Company, a co-partnership. The plant is lo-

Increased Efficiency

This Combination Drinking and Cooler Fountain was designed for one of the largest industrial plants

It is so durable, sanitary and efficient that it has immediately sprung into favor in many factories where a pure **bubbling and cool** drink is desired, as during the hottest days a cool, refreshing drink is supplied that results in **better feeling** and **better work.**

Rundle Spence Manufacturing Co.

Milwaukee, Wis.

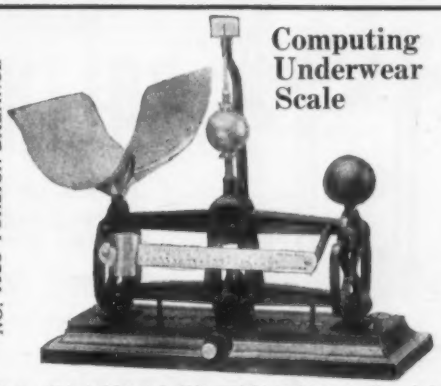
cated at 95 Harrison St., where 90 looms are operated on high grade dress silks. W. Amel has been elected president, Louis W. Amel treasurer and buyer, and Joseph Smith superintendent.

New Jersey, Paterson. Papers conveying the property of the Universal Weaving Company to Myer Barnett and Marcus Edelstein were filed yesterday at the office of the county register of deeds and mortgages, John R. Morris. Some time ago the weaving company assigned its property and plant to Franz C. Reinhardt and the creditors then met and sold the plant to Barnett & Edelstein for $8,205, subject to a mortgage of $9,000. It is understood that Mr. Edelstein has since sold his share to August Parris. The mill is located at 112 Straight St. The sale included full equipment. The Universal Weaving Company has no connection with the Universal Label Weaving Company, at Slater St. and Dale Ave.

New Jersey. Paterson. F. S. Cowperthwait, treasurer and buyer of the Weidmann Silk Dyeing Company, Charles L. Auger, of the National Silk Dyeing Company, and Theodore Boettger, of the Union Piece Dye Works, the largest silk dyeing concerns in the country, agree that there will be no need of curtailing silk dyeing operations for from three to six months. William Skinner, of William Skinner & Sons, Holyoke, Mass., states that not much trouble is anticipated regarding the supply of raw silk.

New Jersey Paterson. Tata, Sons & Company, New York, have opened a branch office and sales room in the office building at 125 Ellison St., this city, with Thornton B. Bell, son of E. Bell, president of the First National Bank, as local agent. Tata, Sons & Company, who are a Japanese raw silk concern, maintained an office in Paterson formerly until November, 1911, when the office was closed. With the anticipation of increased business in the silk industry here in the fall, the company has decided to reopen a local office.

New Jersey, Weehawken. The Enterprise Embroidery Works have been incorporated with authorized capital stock of $1,000,000. F. O. Reilly, 524 Broadway, New York, is the representative.



Computing Underwear Scale

Place suit in holder and slide weight on beam until scale balances. Slide weight indicates weight per suit up to 3 lbs. by 1-4 ounce and per dozen to 36 lbs. by 1-4 pounds.
Ask for No. 4025 TORSION BALANCE.

THE TORSION BALANCE COMPANY
Factory, Jersey City, N. J. Office, 92 Reade St., New York

"SAFETY FIRST"

Allen Safety Set Screws Prevent Accidents

Many thousands are killed or maimed for life each year by projecting heads of set screws. You can prevent such accidents by using

ALLEN SAFETY SET SCREWS

Write for price list No. 6 and free samples for testing.

The Allen Manufacturing Company
135 Sheldon St., Hartford, Conn.
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FACTORY PROTECTION FENCE

Lasts Longer—Looks Better—Costs Less Than Wood

Old Colony Foundry & Fence Co.

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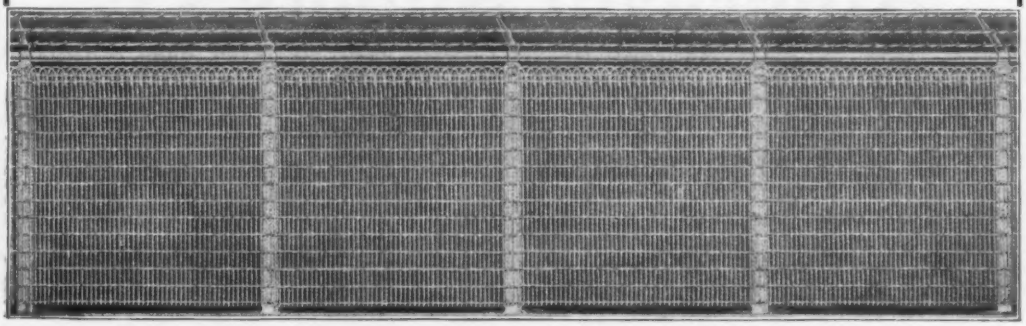

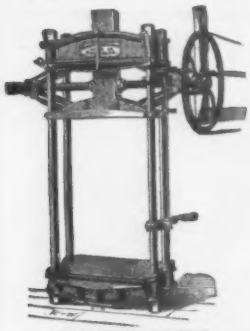

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Any Size Any Power

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HYDRAULIC.

ASHWORTH BROS.,

MANUFACTURERS OF

Card Clothing of Every Description

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SAVE
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THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split
or warp;
Not liable to break.
BOX SHOOKS and CLOTH BOARDS.

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Clean
LIGHT
Strong

Thread and Silk SPOOLS of any description

Made from one piece, up to 6″ long and 3″ dia.

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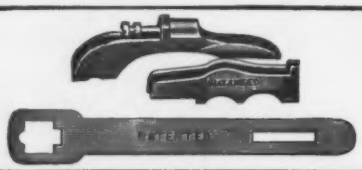
Manufacturers of all kinds of Saddles, Stirrups and Levers



Mills Starting Up.

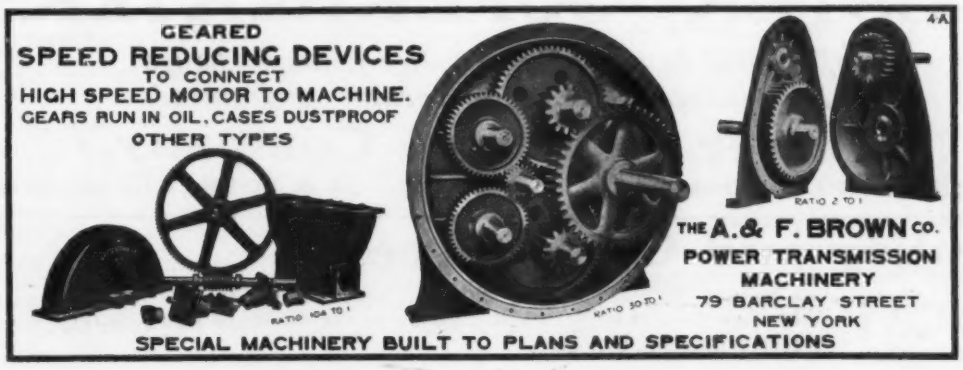
*Maryland, Elkton. Manufacturing has been started in the new plant of the Deibert Mfg. Company. This company succeeds the W. S. Deibert Company at Elk Mills and has recently built a new 2-story mill of brick and concrete construction, 142 feet long by 48 feet wide. The concern manufactures couch covers, tapestry goods and curtains.

Massachusetts, Salem. The first of fifty looms being installed in the cement storehouse of the Naumkeag Steam Cotton Company have been started up. It is expected that within a short time the insurance on the Naumkeag properties will be adjusted. It is stated when the insurance money is paid the Naumkeag Company will have cash amounting to approximately $3,600,000. Work on the new weave shed is being rushed and probably will be completed before the first of the year. No attempt will be made to start work on the main mill before next spring, the company in the meantime buying yarns in the open market for the weave room.

North Carolina, Bessemer City. The Harborough Mill, which was sold last fall to the Mercantile Trust & Deposit Company, of Baltimore, has been transferred, according to report, to the Gambrill & Melville Mills, of Havre de Grace, Md. It is stated the new owners will improve the plant and start it up as soon as possible. Local reports say that the mill will be equipped with new machinery. The Harborough Company manufactured ginghams on 8,800 ring spindles and 400 looms.

*North Carolina, Tarboro. No. 2 Mill of the Tarboro Cotton Factory has been started up on full time and it is expected that No. 1 Mill will soon be in operation. As noted earlier in the month, the property was bought by Henry Staton, an attorney at 80 Broadway, N. Y., for L. L. Staton, Job Cobb and E. V. Zoella, all of Tarboro. The new owners intend to improve the plant and operate it to full capacity when the new crop of cotton is available. Dr. L. L. Staton is president; C. H. Pollard, superintendent.

South Carolina, Landrum. The Shamrock Damask Mills have begun manufacturing. Twenty 72-inch looms have been installed in a new building constructed by the concern. This is a new company incorporated in May with capital stock of $20,000 and is headed by J. R. Mallory, formerly superintendent of the Irene Mills at Gaffney, S. C.



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J. A. VAN BRUNT & CO., Inc.
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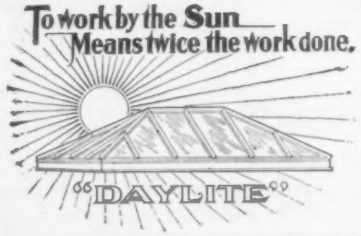
Key Seating Attachment
FOR
Whiton Gear Cutter

We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

THE D. E. WHITON MACHINE CO.,
19 Oak Street, New London, Conn.



Van Noorden Skylights
ADMIT DAYLIGHT NOTHING ELSE
Applicable wherever daylight is desired.
Send for Catalogue
E. Van Noorden & Company
100 Magazine St., Boston, Mass.

FOSTER SUPERHEATERS
Installed in any type of boiler without change in setting. Uniform superheat guaranteed.
Power Specialty Company,
BOSTON: 50 Congress Street **NEW YORK: 111 Broadway.**

Pulley and Gear Forcer.
We build a simple, powerful and very effective machine for removing gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.
BAMFORD & SMITH, Providence, R. I.

B & C
TRADE MARK
BARBER-COLMAN COMPANY
MAIN OFFICE AND FACTORY
ROCKFORD ILL.
BOSTON, MASS. GREENVILLE, S. C.
HAND KNOTTERS AND WARP TYING MACHINES

Arlington Machine Works
TEXTILE FINISHING MACHINERY
ARTHUR BIRCH, Proprietor
Arlington Heights (near Boston), Mass.

FACTS AND GOSSIP.

New Jersey, Paterson. The Madison Silk Company, now located in the Fulton Mill on Ward St., have leased the space in the Strange Mill now occupied by the Audiger & Meyer Silk Company annex and will move their plant to the same when it is vacated, as noted elsewhere in this issue.

New Jersey, Paterson. The Audiger & Meyer Silk Company have moved from the Brandis Mill, South Paterson, to the latest addition to the Reinhardt Mills. After getting started fully they expect to move the machinery in their annex now located in the Strange Mills.

New Jersey, Paterson. The Calumet Silk Mills have been incorporated with capital stock of $5,000 by John W. Taylor, A. Underwood and Oscar Hoffman to manufacture and deal in silk. The office is at Mill and Ellison Sts., Paterson, with John W. Taylor in charge.

*New Jersey, Union Hill. Relative to the report that a new silk industry was to be established at North Hudson, it is reported that the industry referred to was a silk dyeing industry and inquiry regarding a location for the plant came to the Chamber of Commerce of North Hudson from a firm of real estate brokers in Newark.

New Jersey, Waldwick. The Waldwick Bleachery, Inc., is making a specialty of bleaching embroidery, plain sheetings and novelty cloths. This company has capital stock of $100,000. William Stickel, of William Stickel & Company, manufacturers of embroideries, is president, and Ed. Stickel is treasurer and buyer.

New Jersey, West Hoboken. The Comora Embroidery Works have been incorporated with capital stock of $10.000 to manufacture and deal in embroideries. The incorporators are Solomon Comora, West Hoboken; Herman Stern, New York, and Sina Comora, West Hoboken.

*New York, Brooklyn. The India Cocoa Matting Mfg. Company, reported incorporated in June with capital stock of $25,000. is manufacturing coco matts and matting at 181 Hopkins Street. The company operates 80 matt and 6 matting looms and has a dveing department. The product is sold direct. S. Hellman is treasurer, and Joseph Ellman, is superintendent and buyer.

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

The Best Lubricant for Textile Machinery

Because it effects a saving of 30 to 50% on oil bills.

Because it will not drip or spatter like free-flowing oils,—thus, materially reducing loss from stained goods.

Because it lubricates far longer on one filling—hence saves time in oiling.

Because this efficient lubricant provides a permanent, slippery, friction-reducing cushion between all moving parts, keeping bearings cool,—hence insures least loss of power and least wear and tear on cams.

The cleanliness and economic advantages of NON-FLUID OIL is bound to be recognized if you will but try it incomparison with what you now use.

Write for testimonial letters, and free samples for trial in your own mill.

New York and New Jersey Lubricant Co.
165 Broadway - New York
1430 Michigan Ave., Chicago

The Best and Simplest
Machine on the Market for
Cutting Out Floating Threads
of Double Sole and High Spliced Heel Hosiery
Cuts and turns at one operation
There is no limit to capacity. Depends entirely on operator. A child can operate it. Send for further particulars to the builders.
Weinerth Ktg. & Machine Co., Inc.
316-320 McNight St., Reading, Pa.

SPOTS

oil, grease and other mill stains quickly and permanently removed by the Sanitex Process. Machines installed in Textile and Knitting Mills, or Spotting done for the trade at reasonable rates.
The Sanitex Co., 33 Union Sq., N. Y., Dept. A.

LOUIS BARUCH
WOOL BROKER
2 Paul Strasse, - HAMBURG
German, Russian, Spanish, North and South African Fleeces and Skin Wools Scoured, Tops and Noils.
Personal Experience Abroad
Wool Buyer and Seller on Commission
Correspondence Invited

FECULOSE
Bright **ELASTIC** Colorless
FINISH
ON
LACE, MUSLINS, ORGANDIES, TAPE, WEBBING, Etc.

Feculose Company of America
Worcester, Mass.

Sulphur Dyed Hosiery

One of the chief requisites toward production of perfect sulphur dyed hosiery is thorough cleanliness before dyeing. The use of

Wyandotte Concentrated Ash

in the kier for boiling out, removes from the hosiery every particle of foreign matter, giving a positively clean base. Wyandotte Concentrated Ash does this because of its purity and freedom from iron and also because of its easy rinsing properties.

After the hosiery is thoroughly cleaned as above, bleach with a bleach liquor to which has been added

Wyandotte Textile Soda

Hosiery bleached with the Wyandotte Textile Soda bleach comes out softer, whiter and in a better condition to receive the dye than when bleach is made in the ordinary way.

And when it comes to the dye bath, here too Wyandotte Textile Soda should be used, as the Wyandotte insures a uniformity in dyeing, a denser, more brilliant and lustrous color and a silky appearance.

Where these products are used you will experience no trouble in obtaining the exact shades you desire, nor will the colors ever show thin.

Send for our booklet giving complete directions.

Order from your supply house

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich., U. S. A.

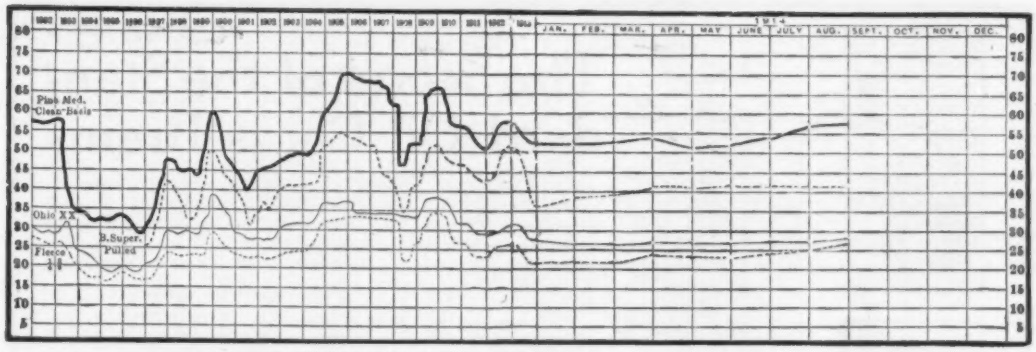


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The domestic wool markets have been active and a large quantity of wool has changed hands. The war has not caused the same demoralization to the wool trade as to cotton, although there are unmistakable signs that if hostilities are continued wool values will be seriously affected. The mills of the Continent have been brought to a practical standstill by the war and it is estimated that they consume 65 per cent. of the Australian wool clip and probably as large a proportion of the South American clip. On the other hand the war is having no direct effect on the production of wool, the principal wool growing countries, Australia, South America and South Africa, lying outside of the field of battle. Under these conditions the conclusion is unavoidable that if the war is prolonged wool values will have to suffer, as production will be very little affected, while consumption will be materially cut down, not only on the Continent, but in England. An important effect of the war has been an advance of price and increased demand for coarse wools suitable for army goods. This, however, is but an incident in the situation. Old timers recall that during our civil war the price of coarse wool advanced so rapidly that a number of mills substituted fine merino wool for coarse wool in making goods for filling army contracts, because the fine wool had become the cheaper of the two. The domestic wool goods market is firm and the mills might count on a good season were it not for the uncertainties involved in obtaining a supply of dyestuffs.

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WOOLEN MILL NEWS

Massachusetts, Holyoke. H. J. Beebe, Jr., of Beebe-Webber Company, has leased space in the plant of D. Mackintosh & Sons Company and will install 30 to 40 looms for manufacturing worsted goods. No further report of this project can be given as yet. Mr. Beebe was president and treasurer of the old Beebe-Webber Company, which decided several months ago to retire from business and dispose of the plant.

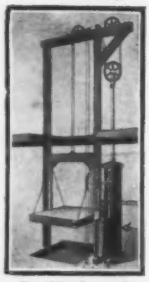
*Massachusetts, Lowell. The new Wamesit Worsted Company which has installed worsted roving and spinning machinery in the old woolen mills on Howe Street is just starting up. The company will do a commission worsted spinning business only. As noted in a previous report the company will operate 3600 spindles. C. Brooks Stevens, treasurer of the Middlesex Company, Lowell, is president; and C. F. Rich, of C. F. Rich & Company, wool and noils, 185 Summer Street, Boston, is treasurer.

TETRAZO COLORS
FOR COTTON

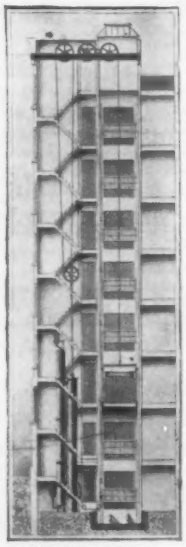
We offer these products in all shades for the dyeing of cotton in any form. Among them will be found colors specially adapted to meet the various requirements of fastness to light, washing, cross dyeing and fulling.
Shade cards and samples, with full information, cheerfully furnished on application.

AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting



Double Geared



Elevator in Large Soap Factory in Jersey City

The Secret of the Standard Oil Co. is Brains

All this Muck Raker hot air is nothing but ten cents a line tommy-rot.

Newspaper hacks must live even though your grandfather has to be dug from his grave to make a horse thief sensation—and sell the magazines.

Here is why the Standard Oil succeeds:

Up at their Albany plant on Rensselaer Island they were equipped with electric elevators.

They found it cost $25 per month to run an electric elevator.

Yes, $300 a year just for juice.

That didn't include the constant repairs.

They have a steam plant at Albany.

They had Ridgway elevators down in Jersey and other places.

They knew a thing or two.

So the Standard Oil Co. sent for Ridgway, and we took out the electric and put in the Ridgway Steam Hydraulic.

The Ridgway elevator costs nothing to run.

The Ridgway elevator has no repairs.

The Standard Oil Co. saves $300 a year on an investment of $1200.

25 per cent saving is not bad!

And this policy all through their business makes big dividends.

But you—why bless your dear old five per cent heart, you are on your way right now to buy one of those very electric elevators the Standard Oil Co. is throwing out although you have a big boiler full of steam.

Your Uncle John D.'s money came by virtue of the same brains that

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

Elevator Makers to Folks Who Know

! WAR EXTRA !

We take this means of assuring our friends that there will be no advance in our price to them of

PEROXIDE

But -- send your orders in promptly!

THE ROESSLER & HASSLACHER CHEMICAL CO.

NEW YORK, N. Y.

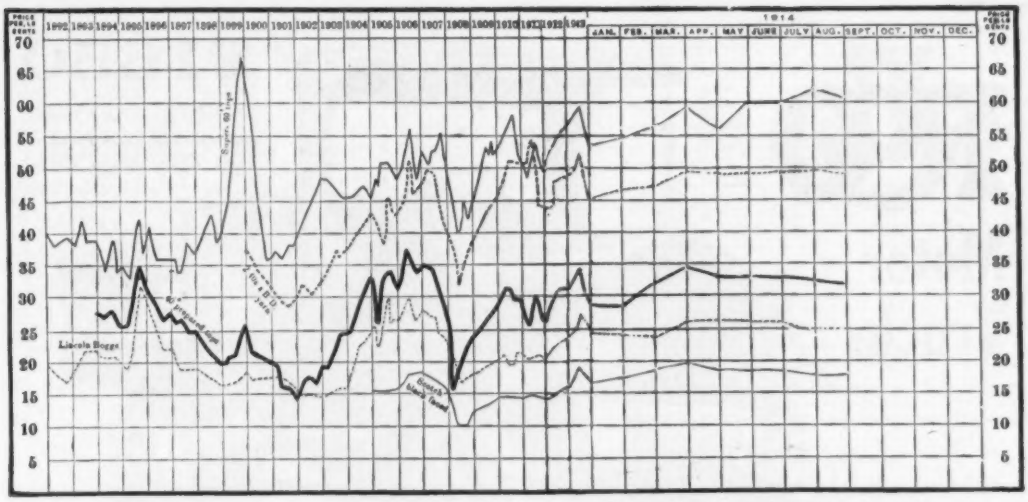


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

There is no market in the regular sense of the term, for the whole of the regular business of the district is at a stand or in confusion. Contracts have been cancelled or suspended in nearly all cases. The privileges of the moratorium have been extensively used so that large sums rest unpaid. General quotations are in these circumstances nominal, but those who want to buy find that wool is firmly held. In anticipation of the eventual fall topmakers have let some of their small stocks of merino tops go at one cent less than the highest, but these dealings are not large ones. The only active business is in wools suitable for army clothing in carding sorts and in strong combing qualities. Strong crossbred noils are wanted also and there is a good demand for a scarce article—light, soft rags for blankets and khaki.

Until the import of materials and the export of goods gets into motion local values will necessarily be uncertain. Against the military demand for coarse grades of wool must be balanced the total loss of the great Continental demand for goods made from wool of these classes, which for the present nothing can replace. It is certain that the one month of the moratorium will not ease the wool, top and yarn trade of its financial difficulties. The sum due from the Continent may easily aggregate $15,000,000 and a single dealer is said to have 1 to 1 1/2 million dollars owing from customers in Europe. The great bulk of the money is due from Germany, but the monthly remittances from the neutral countries have not been received and it cannot be assumed that the whole will be paid in full when peace has been restored.

Weaving manufacturers in this country are looking for fine-spun woolen yarns for the shirting and dress goods trade in replacement of the Belgian makes. There is demand also for French-spun worsted yarn and supplies of reliable quality from any source would be welcomed.

WOOLEN MILL NEWS

Maine, Foxcroft. It is currently reported that the American Woolen Company is considering a project for enlarging the Mayo Mill, purchased last May. George E. Mayo, superintendent, is quoted as stating that while plans are being made for changes it is not known what they comprise. The current report is that the wooden part of the original mill is to be torn down and a modern brick or concrete mill erected in its place. Another report states that the blue prints are ready and working plans being rapidly completed for a new brick mill near the concrete bridge in place of the old wooden mill abandoned some years ago by the Mayos, and that the weave room mills between the old building and the new concrete structure erected by Mayo & Son, will have additional stories making room for 60 new looms, practically doubling the capacity of the present plant, and that work will begin this fall.

*Maine, Sanford. The addition to be built at the Minerva Mill of the Goodall Worsted Company is chiefly to take care of looms to be removed from the plant at Springvale, and the capacity of the company will not be greatly increased at the present time. Men have already begun work on the foundation for the addition which is to be a 2-story structure, 60 by 150 feet. As noted in previous reports the company is also engaged in construction work in its dyeing department.

REO Motor Trucks

$1650

Model J Two-Ton Truck, including Chassis with Driver's Cab. Body Extra.

149 Different Lines of Business Find This the Ideal Motor Truck

In the textile field the service rendered by the Reo Truck in hauling raw materials to the factory and finished goods to the warehouses, makes it everywhere a favorite

DO you know how much your present wasteful method of hauling is costing you? Probably not, or you would have brought the Reo Motor Truck to your business long ago. Let us figure it out together.

The first cost is your first saving, for the Reo Model J Two-ton Truck, selling for $1650, is less than the cost of two good teams and wagons—yet it does the work of three or more teams.

Only one driver's salary to pay instead of three or more for horse equipment.

You save in cost of operation. The Reo Motor Truck "eats" only when it labors and finishes the day as fresh and strong as when it started out in the morning.

But the saving in time is the big item. Reo Motor Trucks will speed up every department of your business. As you deliver faster, you can build, sell, ship, assemble faster. Your whole business feels the spurt of this new form of energy.

Features That Mean Unbroken Service

The Reo Motor Truck is carefully designed to keep going day after day for years. It has exclusive features, found in no other motor trucks, that make this constant service possible.

A radiator built of 24 independent, interchangeable units. One or several units could be injured, instantly repaired or replaced, and the run continued.

Much more power than you will ever need is supplied by the Reo unit power plant, cushioned on a sub-frame away from road shocks or vibration.

Reo hydraulic governor keeps the truck to a safe speed. An irresponsible driver cannot "race" the motor.

Reo right hand center control and left side drive give the driver quick and easy access to and from the seat. No expert driver needed.

Reo impregnable armored frame, built to withstand hard service—even collisions.

Your choice of two lengths of wheel base, 130 or 146 inches.

Set Your Truck To Work

If you are paying for a Reo Truck now, in wasted time and money, you should set it to work at once.

Look the facts in the face. Figure your present hauling costs, and write us about them. We will reduce our case to cold figures. Then we will ask you to decide on no other basis than your own profit.

1155 Reo dealers scattered from coast to coast are ready to tell you about Reo Motor Trucks and Reo service.

A Reo Motor Truck Catalog sent on request

YOU CAN DO IT WITH A REO

Reo Motor Truck Co.
Lansing Michigan

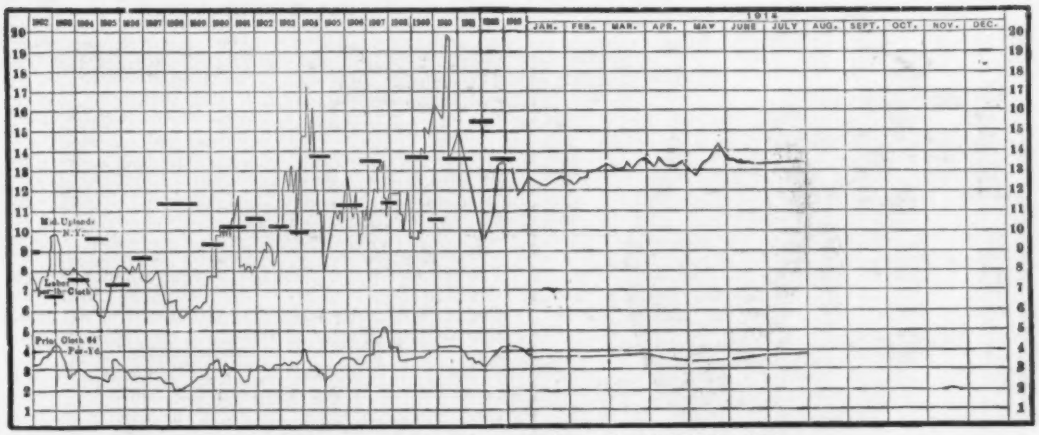


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The cotton exchanges remain closed both in this country and abroad and as a result there are no definite quotations available. Speculation is entirely absent and spot transactions have been limited. The cotton conference called at Washington has been followed by a statement in which the Secretary of the Treasury informs the public that he will accept warehouse certificates of cotton under certain conditions for the security of currency under the new banking act. This is expected to have a steadying influence on the trade, but there is a great scarcity of warehouses and there are many obstacles to overcome before this measure of relief becomes really effective. The Liverpool quotation for middling at this writing is 6.20d (12.4 cents) with some transactions. The market is in a state of almost complete demoralization as a result of a war unparalleled in extent, and the trade under these conditions is compelled to wait and watch the rapid developments of the conflict from day to day.

The movement into sight from Sept. 1 to Aug 28, which is practically the entire cotton year, is reported by the "Chronicle" for a series of years as follows:

Year	Bales
1913-14, Aug. 28	14,589,341
1912-13, Aug. 28	14,020,180
1911-12, Aug. 28	15,903,366

The world's visible supply on Aug. 28 is estimated by the same authority at 2,876,701 bales, as compared with 2,050,309 bales on the corresponding date in 1913, 2,126,585 bales in 1912, and 1,662,727 bales in 1911.

COTTON MILL NEWS

*North Carolina, Marion. Construction work has progressed about fifty per cent on the new Clinchfield Mfg. Company's plant consisting of a main building, 3 stories high, 350 by 132 feet, with a separate boiler and engine room, 100 by 50 feet. Hugh F. Little, the assistant treasurer and agent, expects that the plant will be equipped ready for manufacturing about February, 1915. As noted in previous reports this new plant will manufacture convertible cotton fabrics on equipment of 26,000 ring spindles and 600 automatic looms, using steam power. The product will be largely w[illegible] print cloth, 64 by 64. The capital stock is $800,000 D. D. Little, of Spartanburg, S. C., is president and treasurer; Hugh F. Little, is agent and buyer. Baldwin & Leslie, N. Y., will sell the product.

.....

Enlargements and Improvements.

Alabama, Sylacauga. Good progress is being made on an addition to the plant of the Marble City Mills which is being built on the front of the building. Benjamin Russell of the Russell Mfg. Company, Alexander City, is now president of this company and with S. P. MacDonald, the new secretary and treasurer, has made plans for several changes and improvements to be made throughout the plant, including the installation of much new machinery. Hosiery yarns are manufactured.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

DODGE

Dodge Independence Split Wood Pulley—
Disc Type

Is Your Mill Equipped to Prevent Accidents?

ACCIDENT prevention is the talk of the industrial world. Law makers and insurance companies are constantly agitating and insisting that factory workers be better protected. The power user, naturally, is demanding in his purchases, machinery and appliances that will pnt him and his men on the safe side. The Dodge line is strictly in keeping with the times and the requirements. The application of the Veneer Disc to the sides of the Dodge Wood Split Pulley makes their operation absolutely safe in all exposed places. Its use is also desirable where the air is filled with dust, fibre or lint. Put your transmission needs up to the Dodge engineers. Safety bulletins may be obtained for the asking.

Dodge Manufacturing Company
Transmission Machinery for Textile Mills
Mishawaka, Indiana
Branches and Agencies in All Principal Cities

COTTON MILL NEWS

Connecticut, Killingly. The Killingly Manufacturing Co. will shortly install more machinery. Tire fabrics and specialties in both combed and carded goods are manufactured. Robert Wm. Boys is superintendent.

Georgia, Athens. Two new water wheels are to be installed in the plant of the Athens Mfg. Co. Late in 1913 10,000 additional spindles were installed.

Georgia, Atlanta. Plans are being drawn by Walker & Chase, Candler Bldg., Atlanta, for a warehouse and storage room for the Exposition Cotton Mills. Reports that a manufacturing addition will be erected are incorrect.

Georgia, Columbus. Construction work will be completed in a few days on the addition to the Swift Spinning Mills. Much of the machinery has already been set up in the finished section of the addition. As noted in previous reports 13,000 spindles are being added to the equipment, giving double the present production. Contract has been made with a local power company for electric current to operate the entire plant. In connection with these increases and improvements the capital stock of the concern has been increased from $180,000 to $300,000.

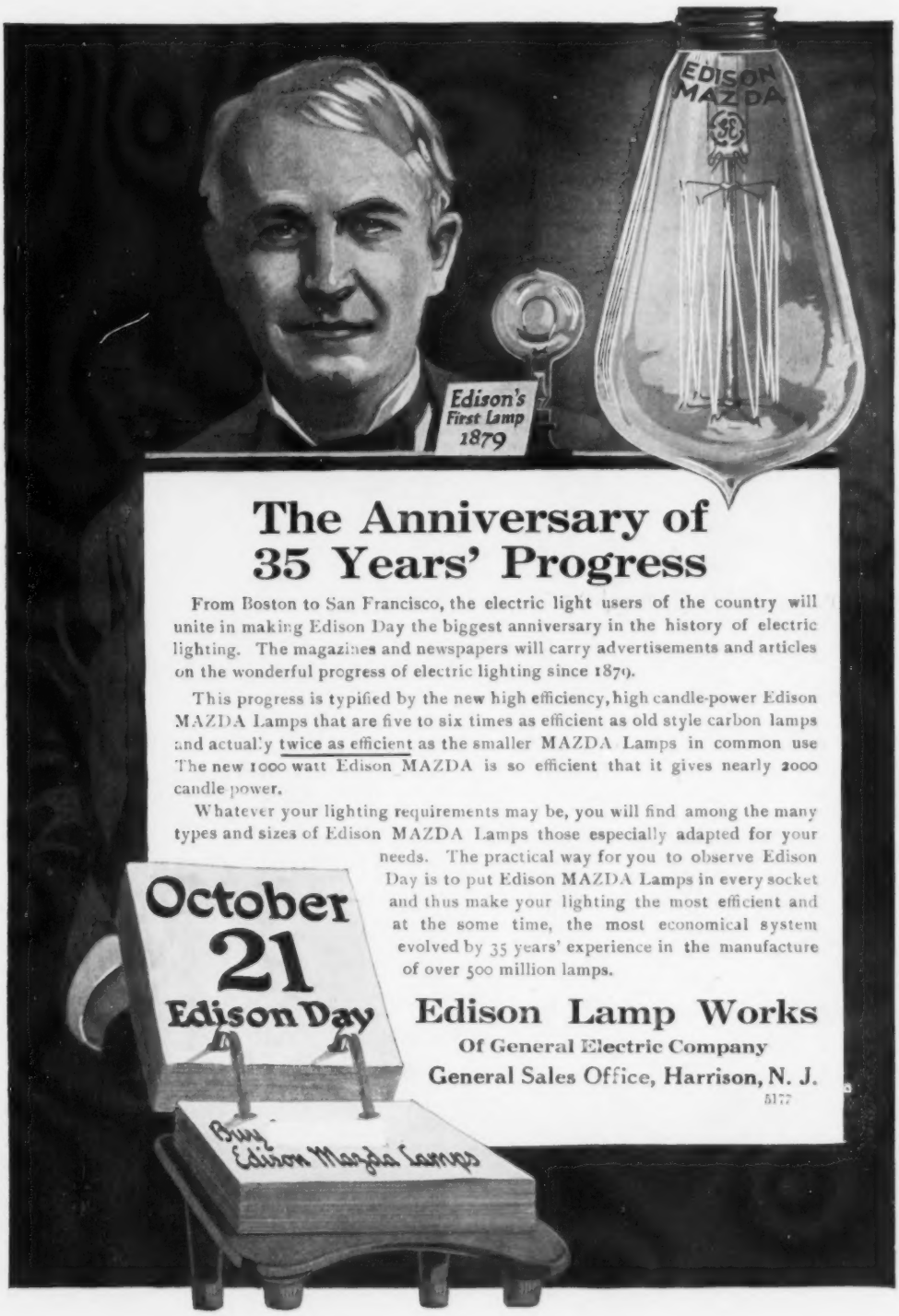
Georgia, Columbus. No. 2 Mill of the Eagle & Phenix Mills is being changed from steam to electric power. The work of electrifying the plants of the Eagle & Phenix Mills has been in progress for several months.

Georgia, Macon. Several new boilers are being installed in the power plant of the Bibb Mfg. Company. The plant is shut down to facilitate the installation.

Illinois, Aurora. The Aurora Cotton Mills, manufacturers of sheetings, have ordered a large number of automatic looms to replace old equipment.

*Massachusetts, Millbury. The Cordis Mill is shut down for two weeks to facilitate the work of moving machinery from the old mill buildings into the new building, a section of which has just been completed. As noted in previous reports the Cordis Mill is building enlargements which will more than double the capacity.

Massachusetts, Salem. Working on a thirty-day contract with $100 to be received or refunded for each day that the work went under or over the schedule time, Thomas A. Elston Company, of Boston, building wreckers, cleared up the ruins of the old No. 6 Mill of the Naumkeag Steam Cotton Company seven days ahead of the time limit. The work of rebuilding No. 6 Mill was started immediately. The directors of the Naumkeag Company have awarded the contract for clearing up their entire property to the Elston Company and allow three months in which to complete the work. The Naumkeag Steam Cotton Company have plans for taking in a considerable part of the land adjoining their property now owned by private parties, which will be useful in the reconstruction of their plant.



The Anniversary of 35 Years' Progress

From Boston to San Francisco, the electric light users of the country will unite in making Edison Day the biggest anniversary in the history of electric lighting. The magazines and newspapers will carry advertisements and articles on the wonderful progress of electric lighting since 1879.

This progress is typified by the new high efficiency, high candle-power Edison MAZDA Lamps that are five to six times as efficient as old style carbon lamps and actually twice as efficient as the smaller MAZDA Lamps in common use The new 1000 watt Edison MAZDA is so efficient that it gives nearly 2000 candle power.

Whatever your lighting requirements may be, you will find among the many types and sizes of Edison MAZDA Lamps those especially adapted for your needs. The practical way for you to observe Edison Day is to put Edison MAZDA Lamps in every socket and thus make your lighting the most efficient and at the some time, the most economical system evolved by 35 years' experience in the manufacture of over 500 million lamps.

Edison Lamp Works
Of General Electric Company
General Sales Office, Harrison, N. J.

5177

MERCERIZED YARNS

Dyers, Bleachers, Gassers

Dyers of Colors Fast to

SUN AND BLEACHING

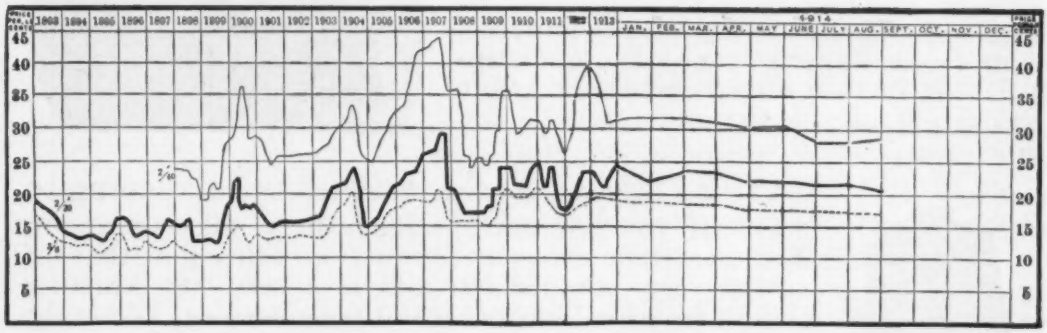
Aberfoyle Manufacturing Company

CHESTER, PA.

310 Lafayette Building
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn market has been somewhat demoralized during August. The closing of the cotton exchanges and the probability of a large cotton surplus to dispose of has caused prices to decline rapidly, with variations of from two to three cents a pound in quotations on some numbers. The dyestuff situation is also in danger in some lines and serves as an incentive for manufacturers to buy more yarns than he can see a possibility of using. Manufacturers in general feel extremely optimistic and the opinion prevails that there is very likely to be an extremely good demand for textiles this coming season. There are good grounds for assuming that the growers of cotton will be financially assisted and the raw stock will not be permitted to decline to ruinous prices.

During the past year there has been a scarcity of labor in the Southern mill districts, which has prevented spinners from running overtime. In many cases they have not been able to get out their full production during the day time. If these conditions continue it seems safe to assume that yarn prices are not going to decline to any excessively low values. There is a question, however, in some minds as to whether the prices of 1907 will be reached, but this is one of the things which the future will tell.

Eastern Cops

6s	19¼
8s	19¾
10s	20¼
14s	20¾
16s	21¼
18s	21¾
20s	22¼
22s	22¾
24s	23¼
26s	23¾
30s	24¾
34s	27
36s	28
40s	29

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	21
14s	21½
18s	22½
20s	23
24s	24½
26s	25½
30s	26½
36s	34
40s	36
45s	40
50s	43
55s	44½
60s	49¼

Eastern Two-Ply Warps, Carded Peeler

2/30s	27
2/36s	34
2/40s	36
2/45s	40
2/50s	43
2/60s	51

THE PHILADELPHIA MARKET

7s and coarser	18
8s and 9s	18¼
10s	18½
12s	19
14s	19½
16s	20
18s	20½
20s	21
22s	21½

We make *singles and doubles* in all sizes for the *knitting trade* put up on cops. From your experience you know the slightest variation in the silk used for knitting vitally affects the appearance of the finished goods. Uniformity and freedom from imperfections is the distinguishing feature of our spun silk. Our reputation as silk manufacturers is behind every order we make for you.

Silk Hosiery and Underwear have come to stay. If you use our special hosiery silk put up on half pound cones your production will equal that of cotton yarn because our silk is a very free knitting thread and it will not wear out your needles. We make prompt shipments for all sizes. Our representative will be glad to figure on your special requirements.

Nonotuck Silk Company

Established 1838
SPUN SILK YARNS
Florence, Mass.

THE J. R. MONTGOMERY CO.
Windsor Locks, - Conn.
MANUFACTURERS OF
Novelty Yarns — Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.
Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.
Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

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HIGH GRADE COTTON YARNS White, Colors, Bleached
On Beams, Jack-Spools, Cones, Skeins and Chain Warps
FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

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HIGHEST GRADE BEST VALUE
Mills RAINBOW, CONN.
JACQUARD CARDS
THE MERWIN PAPER CO
SPECIALTIES
FOR ALL PURPOSES
Inquiries Solicited
Address HARTFORD, CONN.

24s	22
26s	22½
30s	24
40s	30
50s	37
Southern high grade mule yarns:— Cones	
10s	21
12s	21½
14s	22
16s	22½
18s	23
20s and 22s	23½-24
24s	24½
Southern frame yarn, lower grades:—	
6s and 8s	17½
10s	18
Eastern cones (high grade quality):—	
10s	21½
12s	22
14s	22½
16s	23¼
18s	23¾
20s and 22s	24¼-24¾
Skein yarn (mostly Southern):—	
4s and 8s soft	18
10s and 12s	18-18½
14s and 20s	19-20
22s	21
10/2	18
16/2	19
20/2	20
30/2	23
40/2	28
8/2	18½
7/6	18½
Southern warps:—	
10/1	18
14/1	19
16/1	19½
20/1	20
22/1	20½
26/1	21½
30/1	23
8/2	18
12/2	18½
14/2	19
16/2	19½
20/2	20
26/2	22
30/2	23
40/2	29
50/2	37

THE LINEN MARKET

Reports from Belfast have it that flax has increased 60 per cent. in price, with the result that prices on yarns are rapidly advancing, with stocks of yarns of all kinds on hand being very light. Spinners on the Continent are closed down, although the mills in Ireland at this writing are said to be still in operation. The fact of the matter is that there is no market and all quotations have been withdrawn by some spinners.

Lambeth Rope Corporation
MANUFACTURERS
HIGH GRADE RIM, SCROLL, SPINDLE, FRAME, TWISTER & CONE WINDER BINDING, BRAIDED BANDS & CORDS
LAMBETH COTTON ROPE FOR POWER TRANSMISSION.
Lambeth Anti-Fraying Compound.
New Bedford, Mass.
"WHY NOT TRY LAMBETH NEXT TIME"

JOHN F. STREET & CO.
Cotton Yarns
PROVIDENCE, R. I.
Providence, Chicago, Philadelphia, New York

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530 BROADWAY, NEW YORK
MERCERIZED / GLAZED / GASSED } COTTON YARNS

C. MOORE & CO.
Manufacturers of
Twines, Threads and Yarns
Jacquard Harness Twines of all kinds on hand and made to order
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COMMISSION MERCHANTS
COTTON YARNS
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LINDSAY THOMPSON & CO., LTD.
FLAX SPINNERS BELFAST, IRELAND
Linen Weaving and Knitting Yarns
LINEN THREADS OF EVERY DESCRIPTION
T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

SOAPS HIGH GRADE SOAPS
Bleaching, Fulling and Scouring SOAPS
Red Oil and Olive Oil Crown Soaps
J. O. Draper Co. Est. 1860 Pawtucket, R. I.

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FITCHBURG, MASS.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

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Jasper and Huntingdon Sts. Phila., Pa.
Manufacturers of
NARROW FABRICS
SPOOL TAPES. STAY BINDINGS AND BRAIDS
Also Sole Manufacturers of
SAXON
New Guaranteed Non-Shrinkable Tape

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers

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Knitting and Weaving YARNS

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

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Fringes, Tapes, Bindings & Narrow Fabrics

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Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white

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TRADE MARK ON EVERY BOX

The Bradley Stencil Machine

Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.

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Also manufacturers of Oil Stencil Board. Write for prices and samples.

101 Beekman St. New York, U.S.A.

HUGHES FAWCETT

115 and 117 Franklin St., New York

Linen Weaving and Knitting Yarns

Linen Jacquard Harness Twines

And Linen Yarns and Threads for every purpose

Turkey Red Yarns

LARGE STOCK PROMPT DELIVERIES

Established 1844.

BENJ. BUCKLEY'S SON,

(WM. J. BUCKLEY) *Gun Mill, Patterson, N. J.*

Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.

Roving Spindles and Flyers a Specialty. Light Forgings.

REPAIRING OF ALL KINDS.

The Ramie Agency
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New York

Ramie Yarns and Threads

HAVE REMOVED
TO NEW AND LARGER QUARTERS AT
432 FOURTH AVE. Corner of 29th St.

COTTON MILL NEWS

Massachusetts, Taunton. It is reported the Canoe River Mills of the New England Cotton Yarn Company have practically completed the installation of new machinery. It is expected that work will be started soon on the East Taunton lock which is to be constructed by the New England Cotton Yarn Company.

North Carolina, Albemarle. An addition is being built to Mill No. 1 of the Efird Mfg. Company in order to increase the carding capacity and on its completion 12 new cards will be installed. The enlargement will be 50 by 75 feet, and it is expected to be in use about November 1. The Efird Mfg. Company makes hosiery yarns, 14s to 24s. J. W. Cannon is president, J. S. Efird, treasurer; and S. D. Bennett, superintendent. The company has a dyeing department and operates by steam and electric power.

North Carolina, Concord. Twenty-four new spinning frames have been ordered by the Brown Mfg. Company, manufacturers of domets, ginghams and cotton yarns.

North Carolina, Graham. Some of the old machinery in the plant of the Travora Manufacturing Co. is being taken out and replaced with new equipment.

North Carolina, Graham. A large amount of new machinery is being installed in the Oneida Cotton Mills, replacing old equipment.

*North Carolina, Granite Falls. Spinning frames in the plant of the Granite Falls Mfg. Company have been overhauled and twisters and spoolers have been installed to replace old machinery which was broken up. A. A. Shuford, of Hickory, is treasurer and buyer of this concern.

*North Carolina, Greensboro. Work is going forward on the construction of extensive enlargements at the Revolution Cotton Mills, but it is not expected the enlargements will be completed and fully equipped until the latter part of next year. As noted in previous reports the additions include a 2-story mill, 500 by 130 feet, for carding and spinning; a 1-story mill, 447 by 130 feet, for weaving; and a 3-story mill, 303 by 130 feet, for bleaching, dyeing, finishing and shipping. Other buildings for power department, to develop 3,000 h. p., and for storage are included in the plan. The new equipment will include 130 cards, 40,000 spindles and 1,132 looms. C. R. Makepeace & Co., Providence, R. I., have prepared the plans and specifications. The Revolution Cotton Mills manufacture cotton flannels on present equipment of 31,000 ring spindles and 868 looms. E. Sternberger is president and buyer; H. Sternberger, treasurer, and G. T. Stone, superintendent. The Cone Export & Commission Co., New York sells the product.

*North Carolina, Newton. The addition to the plant of the Newton Cotton Mills, now under construction, will measure 75 by 100 feet. Canton flannel and cotton weaving yarns are manufactured. R. B. Knox is secretary, treasurer and buyer.

P&B
RAMIE YARNS
In all numbers for
Knitting, Weaving and Laces
Manufacturers
Erste Deutsche Ramie Gesellschaft
Emmendingen, Germany
Sole Agents
PFALTZ & BAUER, Inc.
Importers
300 PEARL STREET
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THE DEPENDABLE
GOLD STAMPS
SKETCHES AND SAMPLES ON REQUEST
MEYERCORD CO. PHILADELPHIA & CHICAGO.

Walter W. Hodgson
Card Stamping and Repeating
FOR ALL TEXTILE FABRICS
Also Repeating for Throw Overs for Fine and French Index
315 West Lehigh Avenue • Philadelphia

Wool Year Book
In one volume are given outlines of woolen yarn manufacture, worsted yarn manufacture, on both English and French systems, weaving and finishing. There are numerous useful calculations, tables, recipes, and notes, 400 pages; green flexible leather.
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Catalogue of Textile Books sent free
Lord & Nagle Co., Textile Publishers
144 Congress Street, Boston, Mass.

Service! Economy! Convenience!
The Autophone System
Gives them. We have
MILL TELEPHONES
For every class of service.
Send for Booklet
S. H. COUCH CO.
174 Purchase Street, Boston, Mass.

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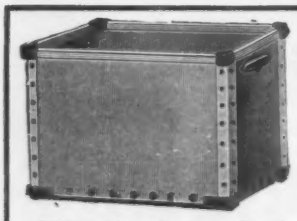
FALLERS
R. H. Hood Company
Established 1885
1842 Germantown Ave., PHILADELPHIA, PA.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Will neither dent nor break when subjected to hard usage. Stronger than wood, lighter than steel. *Write for folder.*
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Branches in Principal Cities

Tees Dash Pot Governors
For the relief and perfect regulations of the Dash Pots of **Greene & Corliss Engines and Ice Machines.**
Runs Automatically, load on or off. **Reduces Friction** and **Noise, Lightens the Lifts** and makes **quick drops.** *Send for circulars.* 30 days trial allowed.
MARCELLUS & TEES
521 Fairmount Ave. Est. 1899 Philadelphia, Pa.

Established 1796

Special shaped carbon, black diamond, **pointed tools** for turning paper, rag, corn husk and cotton **calender rolls,** hard rubber, fibre, etc. Manufactured by
Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City

COTTON MILL NEWS

*Rhode Island, Pawtucket. The interior of the first floor of the new mill of the Royal Weaving Company is now being finished. Construction work on this addition, which is a brick building, 3 stories high, was begun early in the spring and it is expected that machinery will be installed early in the fall. The walls have been completed and the roof is now being put over the structure. The Royal Weaving Company manufactures cotton back satins and silk stripe sleeve linings and cotton yarns. The new building will be used for weaving, as reported, and is designed so that it can be converted into a spooling and warping department later on should a further development of the plant make a change of that nature desirable. It is estimated that there will be an addition to the working force of nearly 500 hands.

Rhode Island, River Point. At the Royal Mills and the Valley Queen Mill of B. B. & R. Knight, extensive repairs have been made. In both mills all the rooms have been repainted to improve the light. In the Royal Mill a supply room has been completed to be used for the storage of supplies.

*South Carolina, Central. An increase has been made in the capital stock of the Isaqueena Mills from $300,000 to $315,000. 280 40 inch looms were recently installed in place of 400 28 inch looms.

South Carolina, Clover. A humidifying system is being installed in the plant of the Clover Cotton Mfg. Company which it is believed will greatly improve working conditions and the quality of production. The usual ten per cent dividend has been declared.

South Carolina, Greer. Eight 250 h. p. boilers have been ordered by the Victor Mfg. Company of the Parker Cotton Mills Company.

South Carolina, Piedmont. The machinery has been moved from the old cloth room of the Piedmont Manufacturing Co. to the new cloth hall recently constructed. The space formerly occupied by the cloth department is to be filled with looms, and the plant will be closed from July 31st for 10 days to facilitate the rearrangement of equipment and for the usual summer holiday. Some new cards are to be installed for which the contracts have been placed. No new looms will be required.

"American" Pulleys Combine More Advantages Than Any Other Type of Pulley
Write for Evidence. Stocked and Sold by Dealers.
The American Pulley Co. Philadelphia New York Chicago Boston

F. C. BARTON
65 Worth Street, New York
MANUFACTURER OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons
Embossing and Cutting Customers Own Goods a Specialty

FACTS AND GOSSIP.

*Georgia, Winder. As suggested in a previous report, the Barrow County Cotton Mills, whose organization was noted, is a reorganization of the Winder Cotton Mills. The men interested in the new company are now operating the Winder Mills under a lease.

Illinois, Chicago. The style of the M. Zeidman Hair Cloth Company, 3229 S. Ashland Ave., has been changed to the United Hair Cloth Company. Eighty-two looms are operated on hair cloth.

*Indiana, Columbia City. William Fisher, head of the new Columbia Woolen Mills, has moved to Columbia City from South Bend and will superintend the construction of the plant and purchase the equipment. Mr. Fisher has been superintendent of the South Bend (Ind.) Woolen Company Details of the new plant have been given in previous reports.

Kansas, Kansas City. The men who recently organized the Wyandotte Cotton Mills Co. to take over the Kansas City Cotton Mills do not contemplate the operation of the plant. They are desirous of selling the property or failing in this of leasing it. A. W. Peet, secretary and treasurer of the Wyandotte Cotton Mills Co., states that the present owners are not experienced mill men and besides they are well occupied with other lines of business.

*Kentucky, Louisville. Ira F. Phillips, formerly superintendent of the Louisville Cotton Mills Company, has organized the Kentucky Yarn Company with authorized capital stock of $200,000. Buildings have been leased and equipment for manufacturing cotton yarns will be installed, also electric power equipment for about 400 h. p. The quarters leased include a 2-story building, 200 by 50 feet, and a 3-story building, 100 by 50 feet. A specialty will be made of cotton waste products. Mr. Phillips' address is 2511 Ramsdell Ave. Louisville

Louisiana, New Orleans. A local news report states that the Maginnis Cotton Mills, which are being overhauled and started up after an idleness of several years, will run with night and day forces. Also that other local mills, including the Lane Cotton Mills Company, the Alden Mills and the Kohlmann Cotton Mill & Mfg. Company, are making similar preparations and advertising extensively for operatives.

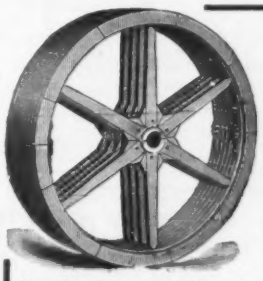
Maine, Dexter. Extensive repairs have been made at the Main Stream Woolen Company, owned by Charles A. Greenwood. The mill was closed temporarily on account of low water, but will start up as soon as there is sufficient water for power.

This Brush
is the best Mill and Loom Duster at the price on the market

No. 46

Write for Prices and Free Sample

M. Cocker & Co., Phila., Pa.

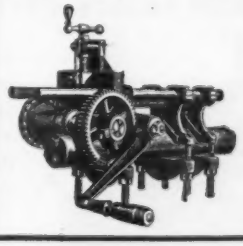


Gilbert Wood Split Pulleys

SAGINAW Manufacturing Company
Saginaw, Mich., U. S. A.

New York Branch, 88 Warren Street
Chicago Branch, 105-109 North Canal Street
Sales Agencies in all the Principal Cities
Cable Address: Engrave A B C and Lieber's Code

YOUR REPAIR SHOP
is not complete unless equipped with one of these
BURR KEYSEATERS



They cut perfect keyseats in shafting anywhere. Save time, delays and money. No. 1 keyseats shafts to 5 in. diameter. Price with full set of cutters, $40.00 net. No. 2 takes shafts to 8 ins. Price, with cutters, $75.00 net.

Interesting booklet free.

John T. Burr & Son
440 Kent Avenue
BROOKLYN, : N. Y.

Elliot Cloth Folder and Measurer

FOR PRINT WORKS GINGHAM AND COTTON MILLS BLEACHERIES' ETC., ETC'
Send for circular.
Manufactured by
ELLIOTT & HALL, 54½ Hermon St., Worcester, Mass.

OAK TANNED LEATHER BELTING
AND
PICKER AND ROLLER COVERING LEATHERS
CHARLES BOND CO., 520 Arch St., Philadelphia

You Need This Kind of Service In Your Business

GOLDEN GRAIN MILLING CO

GOLDEN GRAIN ALFALFA FEEDS

July 20 1914

The Goulds Manufacturing Co
Seneca Falls, N. Y.

Gentlemen:

We are in receipt of yours of the 17th and were just dictating a note asking that you do everything possible to expedite shipment of these repairs, when the expressman arrived with the parts needed.

It is almost a custom to learn that shipments from machine manufacturers have been made two or three days after the date set for it. In this case you have made shipment earlier than you thought you would and we certainly appreciate your promptness in taking care of us in this manner and assure you of our willingness to reciprocate in any way possible at any time.

Yours very truly,

GOLDEN GRAIN MILLING COMPANY

CTW JV

Chas Wopperton

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The real test of prompt service from manufacturers of mechanical equipment comes after the equipment is in operation in your factory.

This letter which comes to us unsolicited is proof of the quick service every user of

GOULDS PUMPS

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In industrial plants of every type and description where such service is invaluable, thousands of Goulds Pumps are now being used.

Complete Set of Power Pump Bulletins on request

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LARGEST MFR. OF PUMPS FOR EVERY SERVICE

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THE NEW OSWEGO METHOD

FOR BOTH STRAIGHT CUTTING AND PINKING SAMPLES

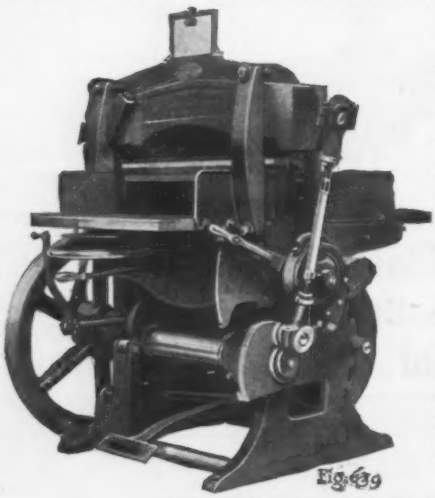


Fig. 639

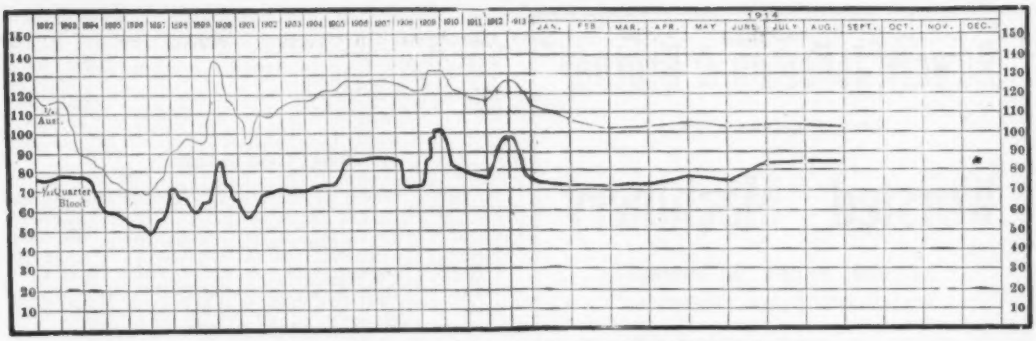
at a great economy of time and cloth is possible on the NEW OSWEGO AUTOS, equipped with back gauge size duplicating attachment and any length of iron back table desired, and other equipment especially adapted to each case for the most rapid production. The instant adoption of the OSWEGO Cutters by many progressive American firms indicates their success on all kinds of textiles, etc.

Thirty-five stock sizes and styles, from 19 in. to 84 in. (larger sizes to order), enable you to select any size or style or price OSWEGO you desire. Each OSWEGO Cutter is guaranteed and the best producible. For Paper, Board, Cloth, Foil, Celluloid, Leather, Etc., Etc.

OSWEGO MACHINE WORKS

NIEL GRAY, Jr., Proprietor

OSWEGO, NEW YORK



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKET

Spinners report a much better feeling along all lines of textile manufacturing where the use of worsted yarns prevails, weavers finding that they cannot secure yarns on contracts placed by them abroad. It is a well known fact that some heavy orders were placed with foreign spinners just previous to the war, particularly for French spun yarns, all of which have been cancelled. There is more confidence in business in this country, many looking for a decided boom about the middle of September, their claims for this being due to the fact that large numbers of buyers are beginning to arrive in New York, who, being unable to secure goods ordered by them from abroad, will be compelled to buy American made fabrics. This will cause mills in this country to work to their utmost capacity to meet their wants. There is no doubt that many of these buyers will be unable to secure anywhere near the amount of goods their requirements demand. In order to meet their demand manufacturers are now beginning to clean up their old contracts for yarns and placing additional business with the spinner, with the result that the latter is now well employed, and are unwilling to take new business except at an advanced price. Another factor is the shortage of dyestuffs. Weavers are hurrying to get yarn dyed to cover orders. This is making the price of yarns more firm, for several months back and spinners positively refuse to listen to any shading of prices from buyers. In many cases they are asking from 2 1/2 to 5 cents per pound more for yarns than the weaver could have bought them for several weeks ago. Weavers are calling for 2/40s and 2/50s half blood yarns with the former ranging from 97 1/2 cents to $1.00 and the latter from $1.10 to $1.15, with some spinners, who claim to be pretty well sold up, asking a higher price. It is rather early at this time to tell what prices will prevail for the coming season, but everything seems to indicate that they will be much higher, due to the fact that most of the foreign wools in the market have been bought up, with little indication of securing more for some time to come. The demand for all classes of worsted yarns compel the spinners to depend solely upon American wools. Weavers are fairly well sold ahead and are not placing contracts for yarns, but are placing orders for fairly large quantities of yarn for immediate shipment.

The underwear and hosiery knitters are finishing up their orders for this season with many of them receiving duplicate business while others are making up samples for next year. Spinners also report a better demand for yarns from manufacturers, who are sending in their specifications and cleaning up old contracts. They also want to have their yarns dyed and in their mills before the dyestuff situation becomes more acute. New business is being placed for immediate shipment in amounts ranging from 10,000 to 15,000 pound lots in counts ranging from 2/16s to 2/30s. Knitters are buying very little yarns in the grease, as most of their yarns are bought colored. In almost every case he is leaving it up to the spinner and taking the chance of the spinner having it dyed.

The prices mentioned in our schedule for the month of September are those which are being quoted at this time for the various grades of yarns, but indications seem to point to an increase on all numbers within a short time.

BRADFORD SPUN YARN

2/12 to 2/16 low common	60-62½
2/20 to 2/24 low 1/4	62½-65
2/20 to 2/25 1/25 1/4 blood	67½-70
2/26 to 2/28 1/4 blood	72½-75
2/32 1/4 blood	75-77½
2/20 3/8 blood	77½-80
2/26 3/8 blood	82-84
2/32 3/8 blood	84-86
2/36 3/8 blood	85-87½
2/40 1/2 blood	95-97½
2/40 delaine	99-102½
2/50 delaine	1.05-1.07½

Edward Jefferson & Brother

SPECIALISTS IN

Worsted Machinery

117-123 South 2d Street
PHILADELPHIA, PENNA.

MACHINERY ERECTED

For Spinners of Cotton, Woolen, Worsted, Silk and Flax
Making a Specialty of WorstedMachinery
Carding, Combing, Drawing, Spinning, Twisting, Finishing, Lining, Levelling, Dismantling, Packing, Shipping
Work Done Anywhere *All Work Guaranteed*
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William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

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MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: 627-29 Bourse Bldg.
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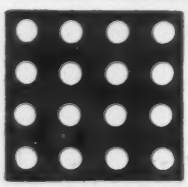
J. B. Jamieson
77 Summer St., Boston
Imported Worsted Yarns
For Knit Goods, Men's Wear and Dress Goods

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING



Perforated Plates for Wool Washing
Rinsing and Carbonizing
In Special Metal
BECKLEY PERFORATING CO.,
Garwood, N. J.

2/40 Australian	1.02½-1.05
2/50 Australian	1.12½
2/60 Australian	1.17½-1.20
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	77½-80
2 and 3 ply 10s-15s straight 1/4 blood	80-82½
2 and 3 ply 16s-20s straight 1/4 blood	80-82½
2 and 3 ply 20s-24s straight 1/4 blood	82½-85
2 and 3 ply 24s-28s straight 1/4 blood	85-87½

(Reduce 7½c. for yarn in oil)

FRENCH SPUN YARN

1/20 1/4 blood	74-76
1/20 high 1/4	77-80
1/20 3/8	80-82½
1/20 high 3/8	82½-85
1/20 1/2 blood	85-87½
1/30 1/2 blood	87½-90
1/40 1/2 blood	92½-95
1/50 delaine	1.00-1.02½
1/40 Australian	95-97½
1/50 Australian	1.02½-1.05
1/60 Australian	1.10-1.12½
1/70 Australian	1.17½-1.20

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	69
1/30 50/50 White Merino Cop	71
1/40 50/50 White Merino Cop	73
1/20 60/40 White Merino Cop	73
1/30 60/40 White Merino Cop	75
1/40 60/40 White Merino Cop	77
1/20 70/30 White Merino Cop	78
1/30 70/30 White Merino Cop	80
1/40 70/30 White Merino Cop	82
1/20 80/20 White Merino Cop	82
1/30 80/20 White Merino Cop	84
1/40 80/20 White Merino Cop	86
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

WOOLEN AND MERINO YARNS

Woolen spinners, particularly those who are making yarns for the knitting trade, report business as being very quiet, with many of them running only on a small basis, as most of the orders being received are not up to volume and call for quick delivery. Many of the spinners, however, are of the opinion that business within a month or so will improve, but the season for buying their yarns is now becoming so late that it is hardly possible for them to make up for all the business

that has been lost. When it does start up again it will be for immediate deliveries. Prices today remain the same as in our last issue and there is no prospect of their going any higher unless the demand is very great. There is, however, an indication that, as the majority of these yarns are bought by the knitters in colors, the dyestuffs situation will practically control the selling price of the yarns.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60-62½
2/20 Bleached	80%	20%	65
2/20 Bleached	90%	10%	67½
2/20 Bleached All Wool			72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

There has been increased activity in the market for rags, shoddy and wool substitutes generally, prices having hardened and a materially larger volume of business done. The improvement has extended to nearly all grades, but buyers are cautious and unwilling to meet the views of dealers and manufacturers. Spinners have operated cautiously and as a result shoddy manufacturers have not booked as large a business as would seem warranted by the improved sentiment in the trade Cotton waste is dull, prices are nominal owing to the demoralization in the raw cotton market. There have been numerous inquiries for wool waste and a fair business transacted. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, shoddy, extra fine	28-30
New pure indigo blue	24-27
Merino	
Fine light, all wool	22-24
Medium light, all wool	19½
Fine black, all wool	19
Fine dark, all wool, best grade	14½-15
Medium dark, all wool, No. 2	11-12
Red knit stock, strictly all wool	20-24
Red flannel, all wool	18-20
Dark blue for hosiery, strictly all wool, No. 1	17-19
Dark blue for hosiery, not all wool, No. 2	14-16

NEW WOOLEN RAGS

Fine merchant tailors	5½-7½
Choice light colors	7-8
Browns	11½
Blacks	6
Blues	8
Fine dark	7-12
Medium dark	4-5
Serges	
Black	10-10½
Blue	10-11
Flannels	
Very light	17-18
Mixed	10-11
Black	6-7

SOFTS AND KNIT STOCK

Soft woolens, best	4½-5
Old white flannels	10-12
Old red flannels	8½-8½
Old blue flannels	3-5
Old plaids	3
White stockings	20-23
Clear dark hoods	6-7½
Light hood stock	12½-13½

Enlargements and Improvements.

Canada, Ontario, Lindsay. An increase has been made in the capital stock of the Horn Bros. Woolen Co., Ltd., from $100,000 to $190,000. As noted in previous reports, additional manufacturing space has been taken over and is to be equipped before the end of September. The new equipment will include two new mules, wool washing machinery, a number of fancy wide looms, and a quantity of other machinery, including equipment which will more than double the dyeing department. They have gone into the manufacture of check mackinaws and ladies' cloakings in addition to their regular lines of woolen yarns, blankets, hosiery, underwear and sweaters.

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EGYPTIAN COTTON
PHILADELPHIA OFFICE "THE ARCADE"

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Cheney Silk Yarns

REELED silks and spun silks for electrical purposes can only be properly supplied by those having long experience in the requirements of this trade. Evenness of silk is essential. This is assured by getting the best silks from those people recognized as most reliable. The best is none too good. Any other may cause disaster. Cheney Brothers have had a greater experience in supplying yarns to this trade than any other manufacturer in the United States. Cheney spun and reeled silks are furnished in any form desired—on shuttle bobbins, paper tubes, cones, or warps; also ball warps. Quotations and samples on request.

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CHENEY BROTHERS

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National Silk Dyeing Co.

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Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market at this writing can be said to be in an unsettled condition, and no one can say just what the future has in store. This is owing first to the war in Europe and now spreading to the Far East, which adds to the uncertain consideration of the market.

All silk offered at present market prices is spot silk, and while some manufacturers are buying silk to arrive, very few care to take this risk, which has the effect of stagnation on the market. In Yokohama the crop is estimated as 220,000 bales, and as it is not likely that the European silk districts will buy much, if any, of the raw product for some time to come, there will be much silk to be had later on.

Some authorities on the situation say there will be ships enough available to transport the silk to this country, while others are not so optimistic in this regard, and feel that owing to Japan being at war, banking facilities will not be available and transportation will be very irregular. In China while there is much silk to be had, the market is feeling the effect of the outside disturbances. As Italy is on the verge of the declaration of war, Milan will probably not be able to ship much of the raw product. It is said by some in the trade that owing to the fact that the European countries will not be able to use any raw silk, the price for November and December deliveries should be lower, but this is problematical and no one can predict just what is to come.

The manufacturers in this country are buying some silk, but only on a hand-to-mouth basis for immediate needs. In most cases they are quite busy on special lines. As there will be no finished product imported for some time to come, it should give the silk industry quite a boom providing they are able to get the raw silk.

One large silk importer has just sent out a notice to the effect that it is no longer advisable to send out a list of quotations. It is said in the market that this is the first time in twenty-five years that there has been any suspension of this circular, which shows the uncertainty of the silk market. Then again most of the dyestuffs used by the manufacturers are products of Europe, and although many manufacturers have a fairly good stock on hand at present there is quite sure to be a shortage in this commodity before many months.

All eyes are on Europe and the Far East as to what the future will bring forth. The cotton and knitting manufacturers are still watching and waiting, and are not buying much silk, but it is thought that a little later on they will again be seen in the market. The ribbon manufacturers are quite busy on both broad and narrow varieties. The Roman stripes still have a great call for girdles and it is predicted this style will prevail another season. The dry goods and department

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Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

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stores do not report a very busy season in broad silks, although many think the business will come later in the fall.

Crepe de chine, poplins and wool back satins are still popular, and are destined to enjoy their popularity for some time to come. This is true especially in black satins. Velvets will also be worn to a large extent the coming fall and winter. It is hoped that the raw product can be obtained and that conditions will be such that the silk manufacturers will enjoy a good fall and spring season.

The following are prices current:

European

Grand Extra Classical Piedmont	5.25-5.30
Extra Classical Italian 12/14 12/16	4.90-5.00
Classical Italian 13/15 24/26	4.70-4.75
Best No. 1 Italian 13/15 24/26	4.65-4.70

6 months' basis

Japan

Filature Kansai Extra Extra	4.25-4.30
Filature Kansai Extra 13/15	4.05-4.10
Filature Shinshu Extra 13/15	4.45-4.50
Filature Kansai Best No. 1 13/15	4.65-4.70
Filature Kansai No. 1 13/15	3.82-3.85
Filature Shinshu 13/15	3.70-3.75
Rereels No. 1 13/16	Nominal
Rereels No. 1 1/2 13/16	Nominal
Rereels No. 1 1/2-2	Nominal

6 months' basis

China

Canton XXA 14/16 (new silk)	3.25-3.30
Canton XXB 14/16	3.00-3.05
Tsattle Blue Dragon & Flying Horse.	Not quoted
Tsattle Kun Kee Mars No. 1	"
Tussah Filature Eight Cocoons No. 1-2	"

6 months' basis

SPUN SILK

There is a very unsatisfactory condition existing in this industry owing to a possible shortage in the raw product. Spun silk manufacturers, while fairly busy, are only supplying their regular customers, and dealing out their product on a cautious basis. While prices remain the same at the present time, no one can predict as to the future action of the market.

Prices follow:

60/2	3.80
50/2	3.70
40/2	3.60
30/2	3.45
20/2	3.35
10/2	3.25

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Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

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ARTIFICIAL SILK

No great activity is noted in this market, although manufacturers are fairly busy. The outlook for the braid manufacturers seems promising. This is also true of the hosiery manufacturers and if this prediction comes true the artificial product will be in great demand. To what extent war conditions in Europe will affect this trade no one can tell, but the market is likely to remain firm for some time. No change of prices can be noted:

150 Deniers First Quality European	2.10
150 Deniers Second Quality European	2.00
150 Deniers English A—Bleached	2.10
150 Deniers English B—Bleached	2.00
150 Deniers English C—Bleached	1.90
150 Deniers Elberfeld Raw	1.92
150 Deniers Chardonette Natural	2.05

SILK

New Mills.

Maryland, Hagerstown. The Maryland Ribbon Company has been organized by William A. Beachley, of Williamsport, Md., Frank P. Downin, Charles F. Downin, and M. U. Law, of Phoenixville, Pa., to manufacture silk ribbons. The second and third floors of the Foltz Bldg., Washington and Locust Streets, have been leased.

New Jersey, Paterson. The Alco Silk Company, Inc., recently organized under the laws of New York, with capital stock of $12.000, is operating 50 looms on silk goods at Gray and Bond Sts. Samuel Cohen is president, superintendent and buyer. Alvin Lederer is treasurer.

New Jersey, West New York. Otto Stohn, who has been associated with his brother, C. Stohn, at Hyde Park, Mass., for a number of years in the manufacture of corset cloths and shoe tops, has started a plant of 40 looms at 17 Harrison Place for the manufacture of the same line of goods.

*New York, Sidney. The Jersey Silk Mfg. Company, Inc., has been chartered with capital stock of $25,000. The incorporators are William J. Wuerdeman, Sidney; Vernon D. Stratton, and George A. Purdy, of Oxford. Mr. Wuerdeman was formerly connected with the Clark Textile Company at Saratoga Springs.

*Pennsylvania. Avoca. The Ramsay Silk Co. has just been incorporated with capital of $30,000, and will do a business of silk throwing in the new silk mill recently built in Avoca, making a specialty of crepe, grenadine, chiffon and other special hard twist threads. John Ramsay, former superintendent of the Shamokin plant of J. H. & C. K. Eagle, heads the concern, and has moved here from Shamokin.

Pennsylvania, Norristown. Frederick Otts has started up eight looms for the manufacture of broad silks in the old Wyoming Cotton Mills, at the foot of Swede St.

SILK MILL NEWS

*Pennsylvania, Susquehanna. The Tri-Borough Throwing Company has been incorporated with capital stock of $50,000 to manufacture and sell silk and other yarns. The incorporators are Lucien Jouvand, Nathan Konogiburg, John F. Lavigne, Atlantic Highlands, N. J.; Francis Ducondray, Palisade, N. J., and Chauncey B. Rice, Stonington, Conn. This refers to the starting up of a new throwing plant at Susquehanna by the Universal-Industrial Corporation, 354 4th Ave., N. Y., raw and thrown silk merchants. Most of the machinery which will comprise the initial equipment has been ordered, but they expect to make further increases later. We noted several weeks ago that a 2-story brick mill, 53 by 154 feet, would be erected in Susquehanna on Erie Ave. for silk manufacturing purposes.

Enlargements and Improvements.

Connecticut, South Manchester. Cheney Brothers are adding one wide printing machine. They now have 12 broad silk printing machines, making a total of 13 machines in this department. Good progress is being made on the new dye house and the new weaving room, both of which are now under construction. The brick work has been started on the weave shed on Pine Street and the beams and rough flooring are being laid for the second floor in the dye house.

New Jersey, Bayonne. The Jewel Engineering Company has been awarded the contract for the construction of a power plant and boiler room for the Aronsohn-Bloom Silk Company. The work embraces a 100 h. p. boiler and an alternating current generator.

*New Jersey, Passaic. Villa, Stearns Company will move their Passaic plant with the complete equipment to the property owned by the United States Finishing Company which they recently leased, as noted. This latter plant is also in Passaic and there is no change in the concern except that its facilities are greatly enlarged. The same class of work will be done in the new plant that they handle in the old one. The New York office is at 221 4th Ave.

New Jersey, Paterson. The Staple Silk Company have just added 20 broad silk looms to their plant, giving them a total of 60 looms. There is space left for 10 more looms which will be added at an early date.

New Jersey, Paterson. M. Salzberg & Sons, who recently moved from 93 River St. to the Strange Mills, have added 30 looms for weaving broad silks.

New Jersey, Paterson. S. Cohen is moving from 48 Straight St. to the latest Reinhardt Mill, where a number of new looms will be added.

New Jersey, Paterson. M. Bornstein & Sons, who were recently reported as preparing to install more looms when the new addition to the Neuviller Mill should be completed, have moved to the Reinhardt Mill on State St. and have installed 16 more looms with space left for as many more.

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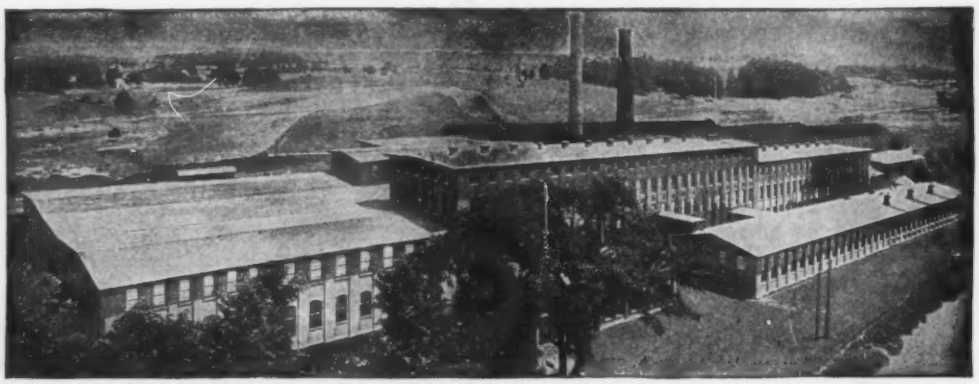

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Acetic, 100 lbs.	2.16-2.56
Citric, domestic	38
Copperas	65-80
Oxalic	6½-7½
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15-1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua Ammonia, 26°	2-4½
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	17-20
Glauber's salt	75-85
Potash, chlorate, crystals	8-9
powdered	9-14
carbonate	3-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65-80
Vitriol, Blue	4.76-5.00
Acetate of soda	4-6
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	19½
Aniline, oil	8
salt crystals	8-9
Alizarine	15-16
Bichromate of potash, American	6½-8
Bichromate of soda	4½-7½
Bisulphite of soda	75-1.25
Cutch, bales	4-8
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

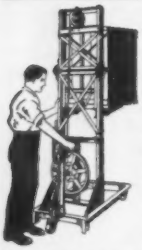
FIRES.

Massachusetts, Chelsea. A 2-story wooden factory building at 228 2nd St., occupied by Harris Goldstein, a shoddy dealer, was burned with loss of $5,000, not covered by insurance.

Massachusetts, Newburyport. A fire which broke out in the picker room of the American Textilose Company was extinguished by the mill fire brigade before it got well under way. The loss is small.

New Jersey, Paterson. A fire in the finishing room of the Mapele Silk Mfg. Company on Totowa Ave. caused damage estimated at several hundred dollars. The finishing room is a small 1-story building in the rear of the main mill. Although the finishing department is put out of operation the fire will not interfere with the operation of the plant.

New York, Gloversville. Fire has destroyed the plant of E. S. Parkhurst & Co., manufacturers of shoddy, with loss of between $200,000 and $300,000, partially covered by insurance. The fire started in a small storehouse and spread to the other buildings.



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So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

MACUNGIE SILK COMPANY
Macungie, Pa.
Bindings and Ribbons
For binding Cotton and Woolen Bed Blankets, Go-cart Covers, Kimonas, Bath Robes, etc.
Special Colors or Shades made to order

SILK MILL NEWS

New Jersey, Paterson. The Maywood Silk Company is about to move to the Brandes Mill at South Paterson, taking the space left vacant by Audiger & Myer Silk Company, who recently moved to the Reinhardt Mill, corner State and Bond Streets. The Maywood Silk Company has already placed orders for some new machinery but not enough to completely fill the space taken.

*New York, Matteawan. The new Matteawan silk mill of Ludwig Littauer will have equipment of 3760 spindles operated by electric power. Edward Chiadini is the superintendent. Construction work on this new plant was started in July.

*Pennsylvania, Allentown. The addition being built to the plant of the Rionor Silk Company at South Allentown, at a cost of $30,000, is well under way and with its completion the concern will be able to increase the output about two-thirds. The new mill is to be 140 feet long by 55 feet wide, and will be 3 stories high, forming an ell with the old mill. It is being constructed of brick and slow burning heavy mill construction throughout. The Rionor Silk Company manufactures narrow ribbons on present equipment of 84 looms. Clarence T. Davis is secretary and treasurer, and Henry Hautman is superintendent.

Pennsylvania, Bangor. The Crown Silk Mfg. Company, manufacturers of silk glove fabrics, have on order four machines of English make which are held up on delivery owing to the conditions in shipping circles.

Pennsylvania, Berwick. The Muster Company, silk throwsters, have awarded contracts for additions which will double their capacity.

Pennsylvania, Easton. The Haytock-Cronemeyer Company is erecting a building, 50 by 250 feet, which is to be used as a dyeing and finishing plant. This concern was formerly known as the Easton Silk Company and manufactures plain and fancy broad silks on 400 broad looms. There is no change in the management.

Pennsylvania, Emaus. Some new preparatory machinery is being installed in the plant of the Emaus Silk Company, manufacturers of broad silk on 250 looms. This concern took over the Keystone Silk Mills, formerly owned by the Paul Gumbinner Co. J. H. Frederick is president and manager.

AMERICAN VULCANIZED FIBRE CO.
C. C. Bell, V. P., 12 Pearl St., Boston, Mass.
MANUFACTURERS
Laminar Fibre Roving Cans
All sizes, standard and special. Electrically Welded Tinned Steel or Fibre Rims. Steel or Wood Bottoms. Fibre or Steel Kicking Bands.
Strongest and Smoothest Can on the Market. In Use for 25 Years

MISCELLANEOUS.

*Massachusetts, North Brookfield. A. A. Andrews, superintendent of the Phoenix Knitting Co., which took over the Oxford Linen Mills, is rearranging the machinery and putting the plant in running order. Good progress is being made according to a report by Mr. Andrews and they expect in the near future to begin operations with 100 looms running.

Massachusetts, North Chelmsford. The Lowell Textile Co. has recently added 18 new looms for weaving towels and crashes.

Massachusetts, Rockland. Good progress is being made by the Rockland Webbing Company on the new building which is being constructed on the site of an old shoe factory recently purchased by the Rockland Company. A number of new looms will be installed on the completion of this addition.

*Massachusetts, Westboro. The five new fancy looms recently received by the Westboro Weaving Company for the manufacture of narrow fabrics are being set up.

*New York, Minetto. Work has been started on the new 12,000 h. p. hydro-electric power plant to be constructed for the Columbia Mills, Inc., successors to the Minetto-Meriden Company. About one year will be required to construct this power plant. With reference to the reports that additional mill buildings would be erected the company only states that they are not making any extentions in the manufacturing end at this time. The Columbia Mills, Inc., convert shade cloth at Minetto.

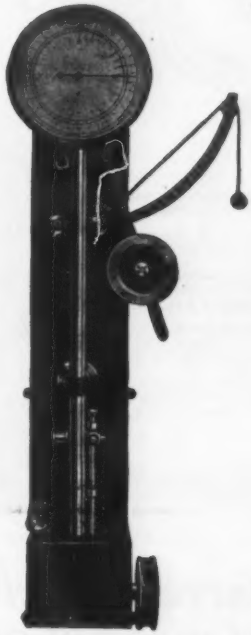
New York, New York City. A new concern has been organized under the name of Max Engel & Co., Inc., to manufacture braids and a plant is being established at 32 W. 18th Street. Max Engel is president and Arthur Stiner, secretary and treasurer. Messrs. Engel and Stiner were formerly connected with E. W. Ballow & Company, 127 W. 25th Street. Mr. Engel is a practical manufacturer, and Mr. Stiner is a salesman.

Pennsylvania, Allentown. Bids are being asked for the erection of a filter house and other additions to the plant of the National Silk Dyeing Company, located in East Allentown.

Pennsylvania, Marcus Hook. It is reported the American Viscose Company is making preparations to double its plant. The concern manufactures artificial silk, and is very busy. Since the establishment of this plant, the first artificial silk plant in the United States, several years ago a number of large additions have been built and a manufacturing village of the English type is being built up. The company has a New York office at 445 Broome St. C. A. Ernst, Marcus Hook, is the manager and buyer.

Pennsylvania, Philadelphia. Bids are being invited for an addition to the plant of the John T. Bailey Co., manufacturers of ropes and twines at Delaware Ave. and Tasker Sts. The operation consists of a brick and concrete building, two stories high, 41 by 64 feet, construction to start after August 10.

AUTOMATIC
POWER YARN TESTER
PATENTED



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HENRY L. SCOTT & CO.
223-233 Eddy St., Providence, R.I.
Send for Catalogue C

Durant
Counting
Systems

We do more than sell you counting machines. We sell you SERVICE, which means information and help that will make your counting machines of more value to you. We want to help you solve your counting troubles, whether you have one machine or hundreds.

Write us about your troubles and your problems. Maybe some other firm has solved the very question you are up against. If we can not tell you at once, we'll start an investigation that will get the information for you.

DURANT COUNTERS

are profit makers in textile mills. Give definite check on *men, machines* and *methods*. Large figures, easily read, easily set. Simple and reliable construction. *Write us today for help on that counting problem. Ask for Catalog No. 20.*

W. N. DURANT CO., Milwaukee, Wis.

Barrett Specification Roofs

Owner, National Biscuit Co., New York City

Architect, A. G. Zimmerman, 11 E. 24th St., N. Y. City

General Contractor, Cauldwell-Wingate Co., 881 Fourth Ave., N. Y. C.

Roofing Contractor, Tuttle Roofing Co. 522 E. 20th St., N. Y. City

Waterproofing Contractor, Germania Roofing Co., 26 Sullivan St., N. Y. City

Photo, copyright Irving Underhill, N. Y.

A Barrett Specification Roof was put on this building because—

The architect knew all about the different types of roofing and further knew that the National Biscuit Company were mighty particular people.

They had a big plant and they wanted it covered with a roofing that would give *long service at a low cost.*

Under such conditions the architect knew there was only one choice, namely: a Barrett Specification Roof, because it gives longer service at a lower *unit cost* (the cost per square foot per year of service) than any other roofing he could specify.

This building is now covered with a Barrett Specification Roof and it will probably last twenty years or more with *no maintenance cost.* Many such roofs have lasted thirty years.

Every permanent building, whether large or small, should carry a Barrett Specification Roof because that means the most economical roof, and one that will be free from leaks and maintenance.

Ask any first-class architect regarding this proposition and he will verify all of the foregoing statements.

Copy of The Barrett Specification with roofing diagram mailed free on request.

Special Note

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland
Cincinnati Pittsburgh Birmingham Kansas City Minneapolis Seattle

THE PATERSON MFG CO., LTD.

Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

MILL STOCKS

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	137½	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	...	21
Booth Mfg. Co., pfd.	...	47½
Bristol Mfg. Co.	...	67½
Butler Mill, com.	...	90
Butler Mill, pfd.	...	100
City Mfg. Co.	...	92
Dartmouth Mfg. Co., com.	127½	...
Dartmouth Mfg. Co., pfd.	97½	...
Gosnold Mfg. Co., pfd.	...	89
Grinnell Mfg. Co.	...	180
Holmes Mfg. Co., com.	104	...
Holmes Mfg. Co., pfd.	105	...
Kilburn	118	...
Manomet	...	114½
Nashawena Mills	...	66
N. B. Cotton Mills Co., com.	100	98½
N. B. Cotton Mills, pfd.	96	...
Neild Mfg. Co.	...	95
Nonquitt Spinning Co.	...	94
Page Mfg. Co.	...	77½
Pierce Mfg. Co.	295	300
Pierce Bros., Ltd.	100	...
Potomska Mills	115	...
Quissett Mills, com.	...	98
Quissett Mills, pfd.	100	102½
Sharp Mfg. Co., com.	...	85
Sharp Mfg. Co., pfd.	...	100
Soule Mills	...	80
Taber Mills	...	100
Wamsutta Mills	115	119
Whitman Mills	114½	123

SOUTHERN MILLS

	Bid.	Asked.
Abbeville	85	100
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...
Arkwright Mills	...	100
Aragon, com.	59	...
Avondale	120	126
Arlington	130	...
Brogan Cotton Mills (new series)	...	81
Brookside	...	...
Cannon	125	...
Cabarrus	120	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	190	...
Columbus Manufacturing Co.	...	85
Darlington	75	83½
Drayton	29	...
Erwin, pfd.	...	105
Easley	...	125
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	59	...
Gibson, com.	109	110
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Glen Lowry, pfd.	...	76
Highland Park	200	203
Highland Park, pfd.	...	102
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	117
Inman, com.	...	108
Inman, pfd.	...	100
Kesler	...	160
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
Limestone	...	126
Lockhart, S. C.	...	72½
Loray Mills, pfd.	...	86
Modena	...	150
Mollohon	...	101
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-six	130	140
Orr	...	86
Ozark	100	110
Parker Mills, com.	7	10
Parker Mills, pfd.	30	35
Parker Mills, guar.	...	88½
Pacolet Mfg. Co., com.	...	108
Pacolet Mfg. Co., pfd.	100	...
Patterson	129	...
Pelzer Manufacturing Co.	125	164
Piedmont Manufacturing Co.	150	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	100	103
Riverside Manufacturing Co.	...	78
Salisbury	150	...
Roanoke Mills	...	156
Saxon	114	...
Spartan	109	...
Toxaway	...	78
Union Buffalo, first pfd.	34	51
Union Buffalo, second pfd.	...	10
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107
Washington Mills	7	...
Washington Mills, pfd.	100	...
Woodside Mills Co., com.	...	88½
Woodside Mills Co., pfd.	...	80
Woodside Mills Co., guar.	...	101
Watts	...	85
Williamson	...	125
Ware Shoals	70	...
Whitney	110	120
Wiscasset	140	150
Woodruff	...	107
Woodlawn	120	126
Young Hartsell	70	...

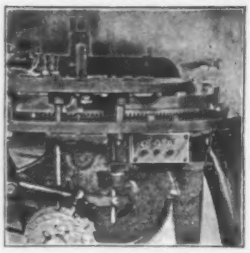
OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	62
Amoskeag Mfg. Co., pfd., N. H.	100	99½
Androscoggin Mills, Me.	100	137
Arlington Mills, Mass.	100	80
Appleton Co., Mass.	100	172
Bates Carpet Co., Me.	100	213¼

ELM CITY COUNTER

registering the number of sweaters turned out on a

LEICHTON KNITTING MACHINE



The Counter is easily attached and keeps accurate record of the machines output. Our Counters are adaptable to all purposes and are extensively used for counting yards, picks and other units in textile manufacture.

They Save Waste, Prevent Errors and Disputes

We have a variety of Counters for textile mill uses.

The C. J. ROOT CO. . BRISTOL, CONN.

Ask for "Catalog 18."

WM. H. MOHN

READING, PA.

High Grade

Grey Iron Castings

MAKING A SPECIALTY OF

SOFT IRON

guaranteed to be easily machined.

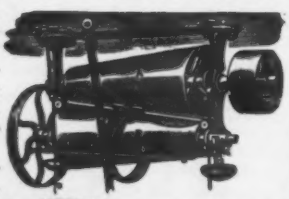
Castings Sand Blasted or Tumbled, as desired.

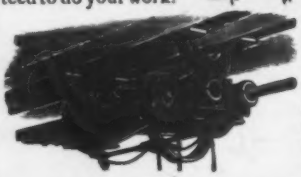
Write for particulars and estimates.

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





We'll furnish them for either floor or hanging use.

Over Ten Thousand Sets in Operation in this Country and Europe.

Send for Catalogue.

EVANS FRICTION CONE COMPANY

G. Frank Evans. Newton Center, Mass.

Bigelow Carpet Co., Me.	100	213¼
Boston Duck Co., Mass.	700	1280
Boston Mfg. Co., Mass.	100	85
Cabot Mfg. Co., Me.	100	100
Chicopee Mfg. Co., Mass.	100	90
Continental Mills, Me.	100	75¼
Dwight Mfg. Co., Me.	100	1021¼
Edwards Mfg. Co.	100	99
Essex Co., Mass.	100	187¼
Everett Mills, Mass.	100	112¼
Fisher Mfg. Co., Mass.	100	125½
Franklin Co., Me.	100	201¼
Great Falls Mfg. Co., N. H.	100	172¼
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	77½
Hill Mfg. Co., Me.	100	90¼
Jackson Co., N. H.	1000	985
Lancaster Mills, Mass.	100	75
Lawrence Mfg. Co., Mass.	100	151¼
Lockwood Co., Me.	100	97
Lowell Bleachery, Mass.	100	125
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	120
Massachusetts Cotton Mills, Ga.	100	93⅛
Massachusetts Cotton Mills, Mass.	100	116
Merrimack Mfg. Co., com., Mass.	100	245⅛
Merrimack Mfg. Co., pfd., Mass.	100	83½
Middlesex Co., Mass.	100	55
Middlesex Co., pfd., Mass.	100	75
Monadnock Mills, N. H.	100	100
Nashua Mfg. Co., N. H.	500	672½
Naumkeag Steam Cot. Co., Mass.	100	172
Newmarket Mfg. Co., N. H.	100	95
Otis Mfg. Co., Mass.	1000	1852½
Pacific Mills, Mass.	100	107
Pepperell Mfg. Co., N. H.	100	305
Plymouth Cordage Co., Mass.	100	228
Salmon Falls Mfg. Co., N. H.	300	150
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1305
Tremont & Suffolk Mills, Mass.	100	100⅜
Waltham Bleachery & Dye Works, Mass.	100	140
York Mfg. Co., Me.	100	85

The Metallic Drawing Roll Co.

INDIAN ORCHARD, MASS.

MANUFACTURERS OF

Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

WRITE FOR PARTICULARS

MISCELLANEOUS.

.....

*Canada, New Brunswick, Dorchester. J. L. McKinnon, trustee, has taken over the business of the Oxford Woolen Linens, Ltd., and is now operating it temporarily, until the completion of a new company, which is to be called the Eastern Linen Mills, Ltd. It is expected that the plant will be increased and that the distribution of its products will be greatly extended.

Canada, Ontario, Walkerton. The binder twine factory, which has been closed for some time, will be started up in the fall by the Imperial Cordage Co., making a hard fiber rope.

*Massachusetts, East Webster. Contract for the new 4-story storehouse at the converting plant of S. Slater & Sons, Inc., has been awarded to the Torrington Construction Company, of Torrington, Conn. The new mill will be 4-stories high, of brick construction, 78 by 92 feet. The structure will be built north of the present offices of the company at East Webster, near the railroad tracks, and will be used entirely for a storehouse for the cotton converting department. It is expected the construction work will be completed in three months. Plans and specifications were prepared by Charles T. Main, Boston, who also prepared the plans for a new 1-story brick dyehouse to be built at the woolen department, and are now inviting bids for this operation. The Torrington Construction Company, the successful bidders for the storehouse, have just completed an addition at the South Village plant. The Pitman Construction Company is just finishing up the construction of a new mill at the North Village.

*Massachusetts, Fall River. The machinery of James Holden, Inc., manufacturers of cotton rope, is being moved to the plant of George Cummings & Son, roll coverers. The businesses will not be consolidated but are simply being located in the same building. The banding business of Covell & Osborn Company has been purchased by James Holden, Inc., and is to be moved to the same building.

*Massachusetts, Lawrence. Some new buildings will have to be erected to allow for the rearrangement of the plant of the Farwell Bleachery, necessitated by the seizure of some of their land by the City of Lawrence for the new Central Bridge.

Run true on card table—have a very smooth finish

which allows the roving to be drawn from the can with practically no resistance, thus avoiding broken ends.

Vulcan Roving Cans

are light in weight, rigid, strong and very durable. Made of the best chemically treated fibre with tinned soft steel rings, accurate in size and perfectly round. Get our prices.

Send for booklet.

James Hill Manufacturing Co.,

PROVIDENCE, R. I.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

Allis-Chalmers Manufacturing Company

Power and Electrical Equipments

Milwaukee - Wisconsin

For all Canadian business refer to Canadian Allis-Chalmers, Limited, Toronto, Ont.

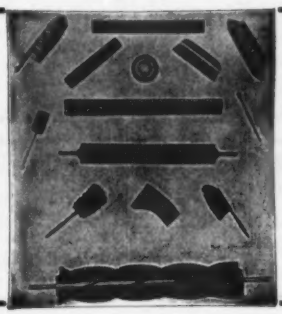
We Make and Repair

Brushes

For Every Known

Fabric

The Name MASON Guarantees



Mason Brush Works

Worcester, Mass.

Agt. and Mgr.
CHAS. A. O'NEIL

FACTS AND GOSSIP.

.....

Alabama, Florence. The Ashcraft Cotton Mills have resumed manufacturing after a shut-down lasting several weeks. The mill closed to facilitate the work of overhauling machinery and for generally renovating the plant.

Alabama, Midland City. Citizens of this place are working on a proposition for a cotton mill and subscriptions are being secured.

*Alabama, Prattville. No definite information as to the future of the Pratville Cotton Mills can be given at present. The property has been purchased by M. J. Nicrosi for $65,000, but the court has not confirmed the sale as yet and it cannot be stated what will be done.

*Arkansas, Pine Bluff. There seems to be some foundation for the report that a North Carolina cotton manufacturer contemplates establishing a mill in Pine Bluff, but the identity of the parties interested has not yet been learned.

Arkansas, Little Rock. A. P. Pfeufer of New Brunswick, N. J., is organizing a cotton mill company to establish a mill in Little Rock.

California, Marysville. It is rumored here that a proposition for the reopening of the Marysville Woolen Mills is being seriously considered by the owners. The plant, which contains 6 sets and 60 broad looms, has been closed for several years.

*Canada, Ontario, Galt. The Galt Hair Works, manufacturers, importers and dealers in fibres and hair are running ten looms as a side line to their regular business of handling hair for brush makers, weavers and spinners. The plant is located at 136 Chalmers Street. There is a possibility that an increase will be made in this manufacturing plant later on.

Canada, Quebec, Massueville. It is reported that R. J. Reeves, formerly of Providence, R. I., will establish a felt factory here.

Connecticut, Bridgeport. The Bridgeport Novelty Mfg. Co. has been incorporated with capital stock of $50,000 to manufacture gloves and novelties. Business will be started with $15,000 paid in. The incorporators are Henry Lee, Chas. E. Tookes and William H. Marigold.

Connecticut, East Killingly. Arrangements are being made by the International Cotton Mfg. Company for running on a day and night schedule. Absorbent cotton and similar products are manufactured.

*Connecticut, New Hartford. The Touraine Mills, Inc., which succeeded the Touraine Company, has capital stock of $50,000. S. H. Greene has been elected president; Albert L. Scott, 60 Federal St., Boston, treasurer and buyer; and Aaron H. Watson, agent. The plant is engaged in manufacturing silk maline on 16 looms, and does block printing on chiffon and application work. Seventy-five hands are employed. The business is under the general management of Lockwood, Greene & Co., Boston.

RATS KILLED BY SCIENCE

By the use of the wonderful bacteriological preparation discovered and prepared by Dr. Jean Danysz, of Pasteur Institute of Paris. Used with striking success in the United States and Europe for many years.

DANYSZ VIRUS

contains the germs of a disease peculiar to rats and mice only and is absolutely harmless to all animals other than mouse-like rodents. Because of the feverish condition caused by the Virus the Rodents die in the open. The disease is also contagious to them. HOW MUCH TO USE: For factory and mill buildings, from one to two dozen tubes for each 5,000 square feet of floor space. PRICE: One tube, 75c; 3 tubes, $1.75; 6 tubes, $3.25; one dozen, $6.00.

DANYSZ VIRUS LIMITED, Dept 4, 72 Front Street, New York

The Chicago Portable Watchman's Clock
Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies
The Perfection of Watchman's Detector Service
Simple, Efficient, Tamper-proof, Durable
WATCHMAN'S CLOCK AND SUPPLY CO.
9 CHURCH STREET, NEW YORK

For Perfect and Economical Results in Speck Dyeing Worsted Piece Goods, use
CRYSTAL SPECK DYE
Covers all vegetable and other specks.
Does not stain white silk threads in goods.
Worden Chemical Works
4 Cedar Street, New York

ARABOL MANUFACTURING COMPANY
100 William Street, New York
Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners
EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES

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Skeins, Cones, Tubes and Warps

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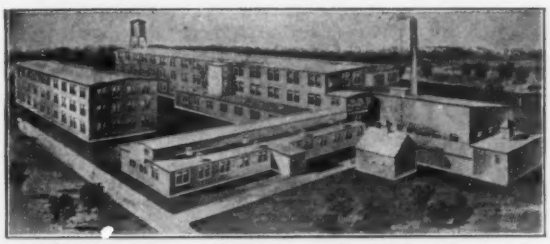
PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres

HOME BLEACH AND DYE WORKS, Inc.



DYERS, BLEACHERS AND MERCERIZERS OF

COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

ESTABLISHED 1881

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND MERCERIZERS

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works, Oxford and Worth Sts., Frankford, Pa. 140 Chestnut St., Philadelphia

Duxbury's

English Calender Roll Papers

For Embossing and Other Calenders.

Chas. A. Johnson & Co.

Sole Agents for America

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THE PEERLESS COMPANY

Willard and Jasper Sts., - Philadelphia

DYERS OF SKEIN SILK

FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers

Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

JOHN F. DAVIDSON

(ORIANNA BLEACH WORKS)

BLEACHER

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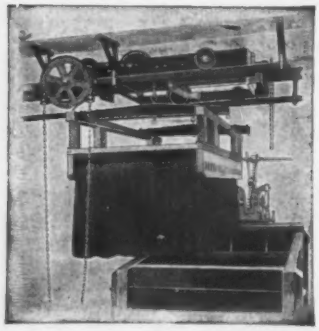

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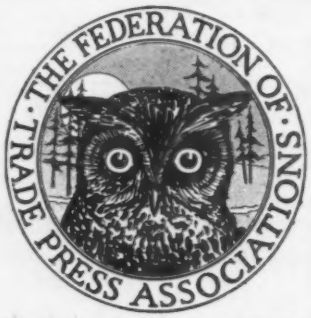

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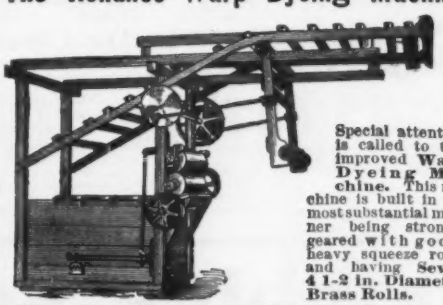

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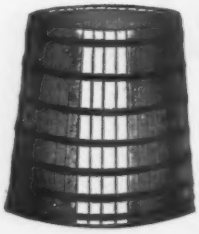

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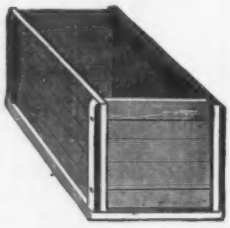

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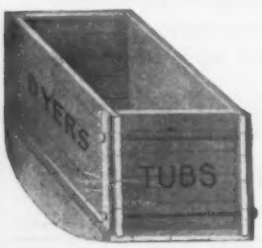

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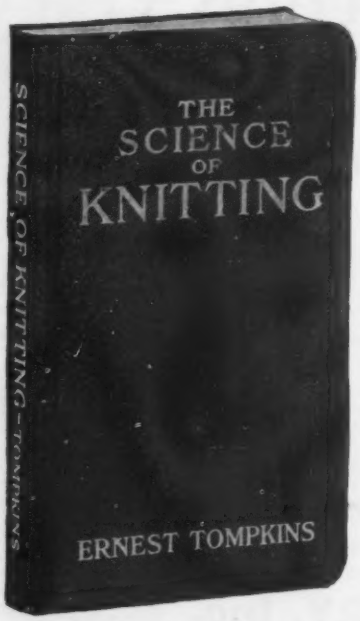

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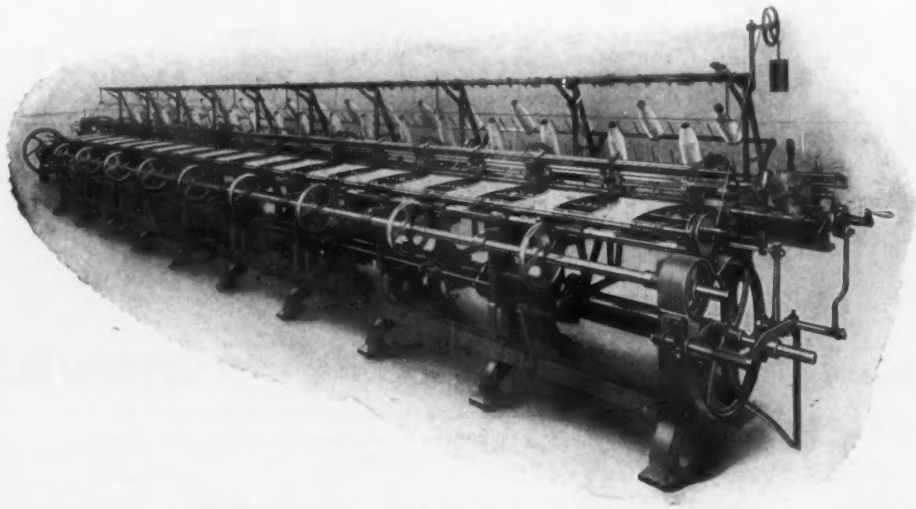

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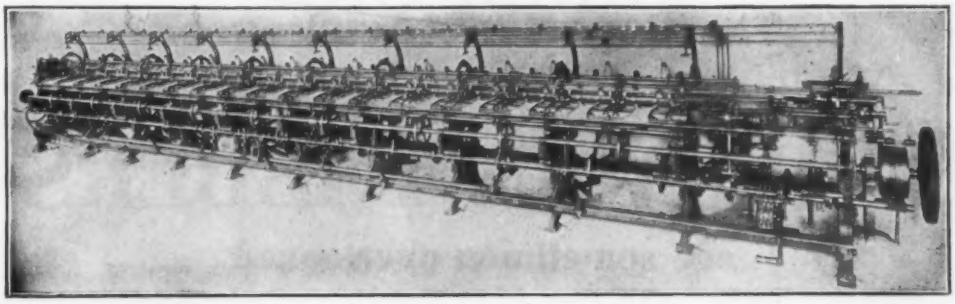

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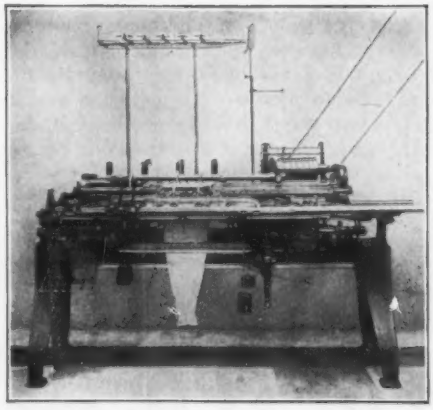

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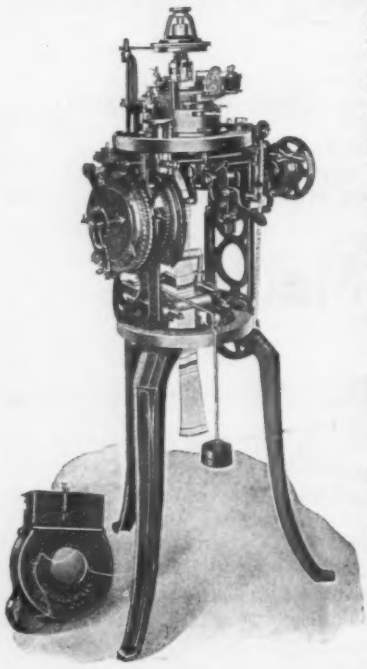

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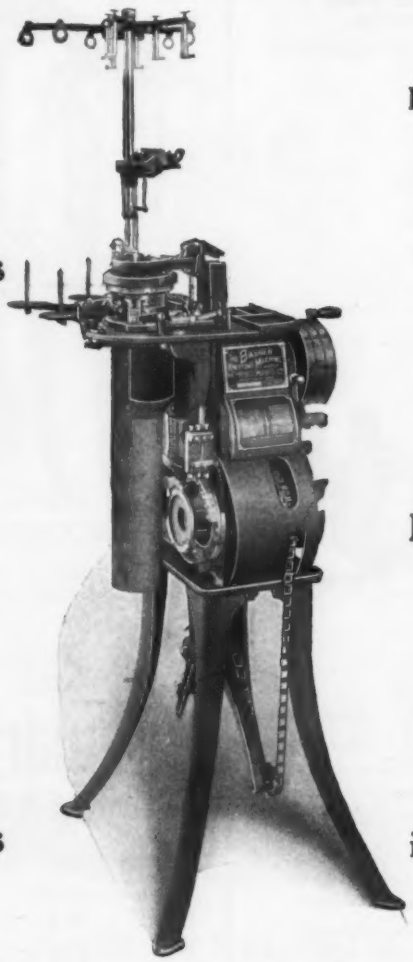
NEW MODEL

Banner Full Automatic Hosiery Machine

A FEW OF THE NEW FEATURES

Over
16,000
Banner
Machines
in
successful
operation



All working parts accessible from *front* of machine

Five Yarn Changing Levers

Automatic Transferring Device

New and *Novel* Device for High Splice and Double Sole Slackening

New Yarn Engaging Device

High Speed in *Heel* and *Toe*

Single Pick

Average
production
100 machines
a week

Over 4800 machines sold and delivered in 1913 as compared with 3700 in 1912

HEMPHILL MFG. CO.

131 Clay Street - - Pawtucket, R. I.

1914

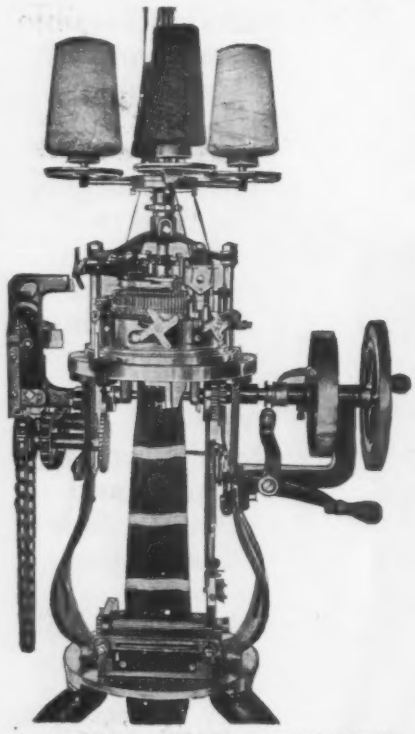
CRANE MFG. CO.

Established 1870 LAKEPORT, N. H. Incorporated 1890

Spring and Latch Needle Machines

for Both Rib and Plain Work
Economically Producing

A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC TOQUE MACHINE

Made in sizes from 5″ to 7″ inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

These machines are built in a thorough and workmanlike manner and are second to none in the market.

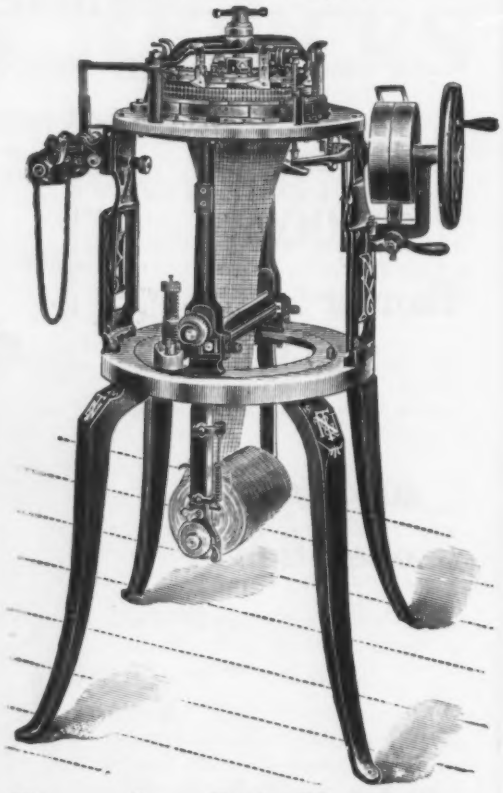
The Crawford stop-motion is applied when requested

SOME CRANE FEATURES.

Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 40 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

NYE & TREDICK CO.

718-720 Cherry Street
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

NYE & TREDICK CO.

A New "Union Special"

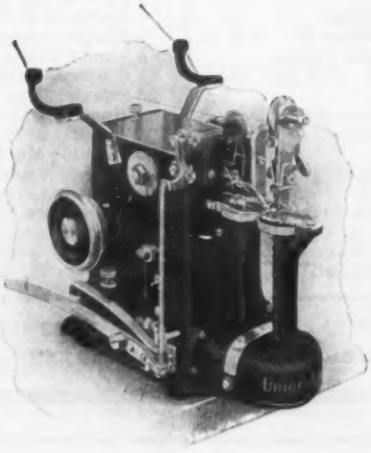
Cup Feed Machine for Seaming Selvage Edge Hosiery

Quiet, Light Running, High Speed

Double Thread Interlock Seam
perfectly flat and non-irritating

Ends of Seams Locked
giving looper finish

Finest Gauge Silk Fabric
To heaviest cotton hose seamed with equal facility



Improved Adjustable Uncurling Device
insuring perfect seam

Both Feeding Cups Actuated
insuring positive feed upon both selvages, avoiding puckered seam

Quickly Adjustable Stitch Regulator
without interchanging parts.

Union Special Machine Company

HOME OFFICE AND FACTORY
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GENERAL EASTERN OFFICE
63-65 Bleecker St., N. Y. City

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64 Temperance St., Toronto, Ont.

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Drying Forms

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

Hosiery Boards

JAMES TAYLOR, 216 N. Front St. Philadelphia, Pa.

ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
1 Boomer & Boshert Cold Press.
1 Crane Style Collarette Machine 20", 16 to in.
1 Rotary Fire Pump. 3 Small Pumps.
2 Toque Machines.
4 Hosiery Dryers.
14 Cornely Hosiery Embroidery Machines.
500 Dozen Hosiery Shaping Boards.
1 Caligraph Typewriter.
1 Complete Plant for Mfg. Hosiery
1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
1 Payne 40 Spindle Skein Winder.
1 Abel 36 Spindle Cop Winder.
1 Union Special Overedge, Style 15.400.
4 Climax High Speed Motions for Ribbers.
1 Underwear Mangle.
Lot Electric Stop Motions for flat Machines.
1 Merrow No. 60.
1 Crawford 17 Plate Press.
1 Blickensderfer Typewriter
5 Band Folding and Cutting Machines.
1 Curtis & Marble Napper, 66".
30 Sweater Coat Machines various styles.
8 Jones Fleecers, 24x36".
1 Underwear Knitting Plant.
2 Singeing Machines.
1 Hosiery Printing Press.
4 Hosiery Lever Presses.
42 Union Spec. Sewing Machines, various styles
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

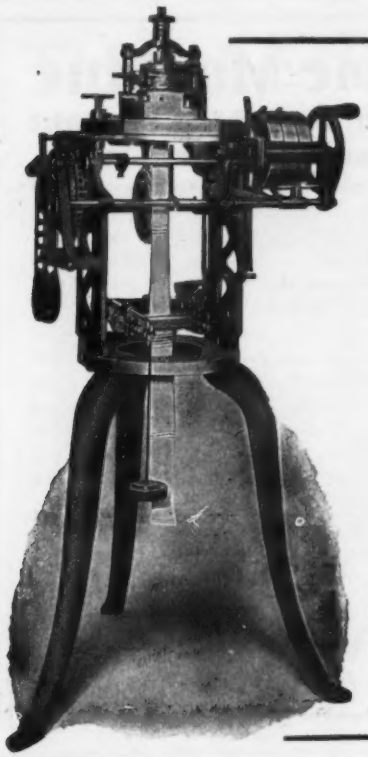
We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

John W. Hepworth & Company

N. W. Cor.
Lehigh Ave.
and
Mascher St.
Philadelphia, Pa.

Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.



H. BRINTON COMPANY

213-217 Race Street, Philadelphia, Pa.

BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

NECKTIE MACHINES

for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

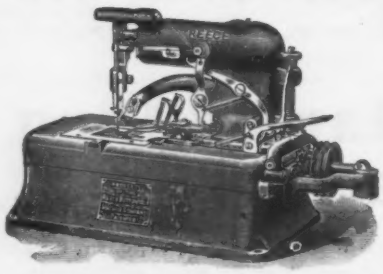
Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
Pineapple Stitch Sweater Machines.
Jersey Sweater Machines.
Plain Binding Machines.
Rotary Jacquard Binding Machines.

FOR INFORMATION, ADDRESS

STAFFORD & HOLT,

LITTLE FALLS, · NEW YORK, U. S. A.

The Reece Button-Hole Machine



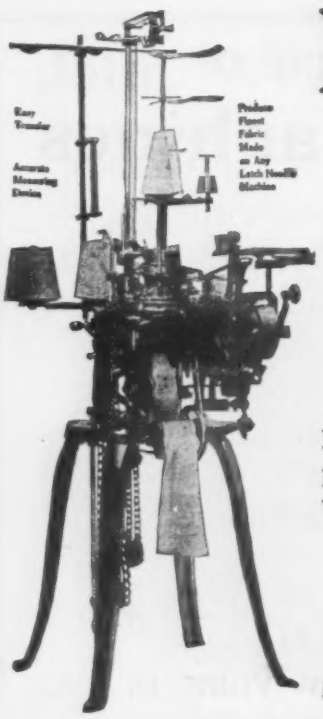
For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from 1/8 of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

THE REECE BUTTON-HOLE MACHINE CO.

Office and Factory - 500 to 514 Harrison Avenue, Boston, Mass



What Knitters are Saying About the "P.& O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P. & O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

SAVES 10% ON YARN

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

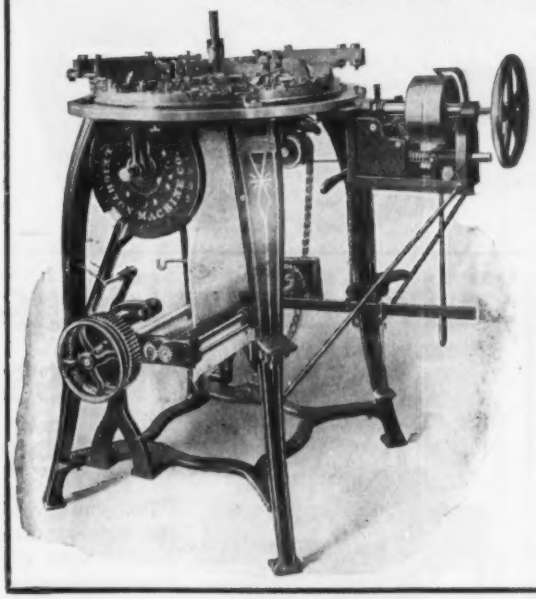
Write for full particulars

PAXTON & O'NEILL

541 N. THIRD ST., PHILADELPHIA, PA., U. S. A.

THE LEIGHTON KNITTER

HAS EARNED THE REPUTATION OF PRODUCING



Firm, Elastic Garments

USING LOW GRADE STOCK

THESE MACHINES ARE BEING USED FOR

High Grade Goods

MORE AS COMPETITION INCREASES

Real Efficiency

Means Excellent Stitches with ECONOMICAL OPERATION

For Particulars ask

LEIGHTON MACHINE CO.

Manchester, N. H.

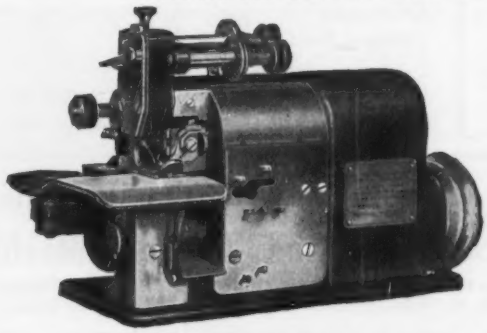
The Merrow

High Speed Overseaming, Overedging and Shell Stitch Machines are

FAST

DURABLE

Light Running



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 B or 22 for Bed Blankets. STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N. Y.
815 West Van Buren St., Chicago, Ill. 1019 E. Baltimore St., Baltimore, Md.

THE LAMB

LEADER OF KNITTERS

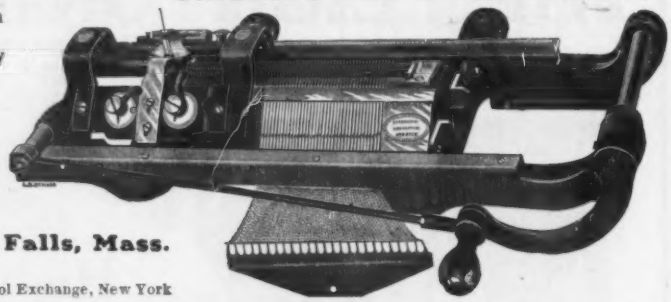
ORIGINAL AND STILL THE BEST

Most widely used; being operated in every civilized country.

Our Collarette Knitter Knits almost any conceivable style and with selvage ends.

Circular Rib Top and Seaming Machines.

Send for Prices and Catalog.



LAMB
Knitting Machine
COMPANY

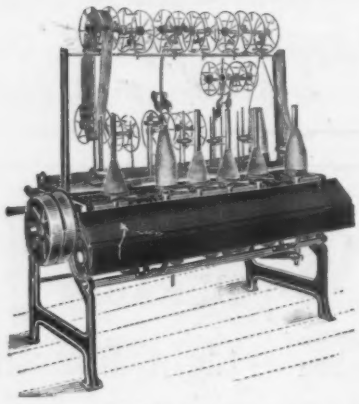
P. O. Box 5888, Chicopee Falls, Mass.

J. E. Woodhead, 124 East 22d St., Chicago.
L. D. Sanborn, Room 513, Wool Exchange, New York

A. W. ALLEN

2427 Mascher St., Phila.

WINDERS



6 SPINDLES UP

The best winder on the market. If you are not using one or more try one.

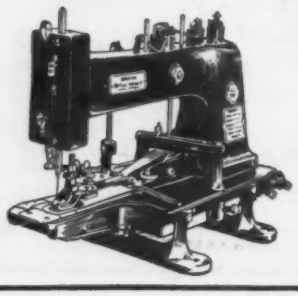
The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

Buttons Do Not Come Off If Sewed On By the Elastic Stitch Button Sewing Machine



No Bobbins to Wind. Will Sew All Buttons With Any Thread.
No Threads to Trim. Saves 90% of the Needle Breakage.

This machine is operated with but one thread, which enables it to run at higher speed than a two-thread machine, greatly reducing operation and maintenance expenses. It will sew on any size or style of two or four-hole buttons. Its patent thread-breaking device does away with the use of knives, and leaves the buttons neatly finished—no unsightly loose threads.

Send for "List-of-Users" booklet.

Union Button Sewing Co., Dept., Frederick Osann Co.

394 Atlantic Ave., Boston, Mass. **Agents Everywhere** 245 Seventh Ave., New York

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Acme Knitting Machine & Needle Company

FRANKLIN, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers Like our Latch Needles

because we make a superior grade of needles

Philadelphia Office, Bourse Bldg.

CHARLES COOPER

BENNINGTON, VERMONT

MANUFACTURER OF

Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.

COLLARETTE ATTACHMENT

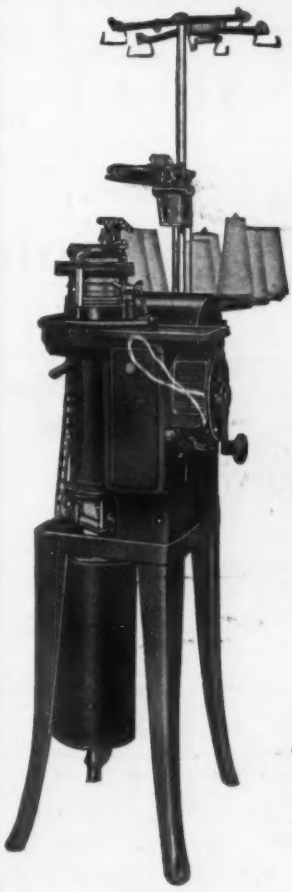
American Representative:
G. H. ROGERS
838 Lancaster St., Albany, N. Y.

European Representative:
FELIX LEDERER
1x/4 Schubertgasse, Nr. 23, Vienna, Austria

"Jenckes Model E"

BALL BEARING

Full Automatic Knitter



Revolving Needle Cylinder

Six Yarn Fingers

Plating

High Spliced Heel

Double Sole

Machine only 18 inches wide

Fabric Take-up

Transferring of ribbed tops without dropped stitches

Jenckes Quality Fabric

Jenckes Knitting Machine Co.

Main Office and Factory

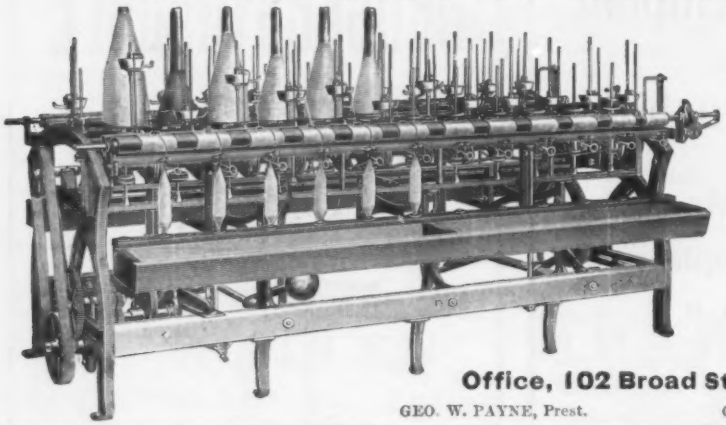
PAWTUCKET, R. I.

Philadelphia Office, 1211-1217 Filbert St.

Also builders of "THE INVINCIBLE"

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

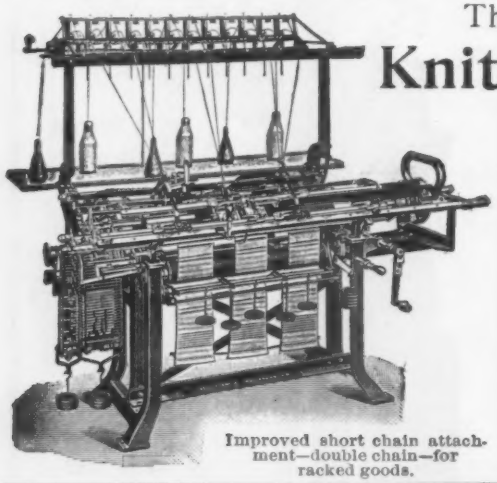
Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.

(Est. 1865, Inc. 1903.)

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas



Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

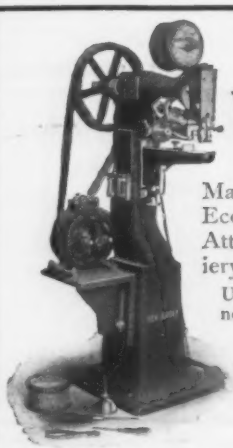
Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

281 Ainslie Street **Brooklyn, N. Y.**



New Jersey Wire Stitcher

Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

Send for Catalogue

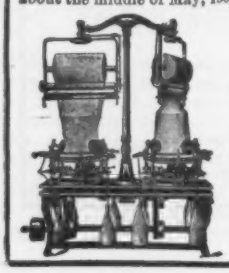
J. L. Shoemaker & Co.
15 S. Sixth Street
PHILADELPHIA

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

STANDARD "G"

¶ A New Type of Hosiery Machine—being the result of 22 years of actual experience in studying the needs of the trade.

¶ Your investigation desired.

¶ Can be seen running at all times.

Standard Machine Company

OFFICE AND SHOWROOMS

330-340 N. 12th Street

Philadelphia

"ACME"
Hosiery and Textile Binder
No. 30

A Simple, Inexpensive Machine for Attaching Tickets on Hosiery, Underwear, etc.

It uses a pointed staple, **CANNOT INJURE THE FINEST SILK HOSE;** can be set aside when not in use.

Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.

For particulars and the address of the nearest agency

Apply to the Manufacturers

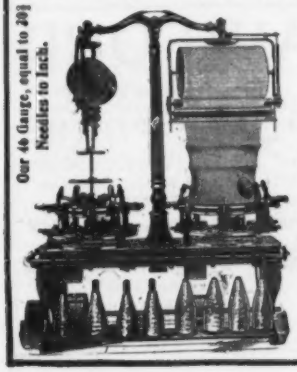
The Acme Staple Company

Camden, N. J.

We are the Oldest Manufacturers

WITH

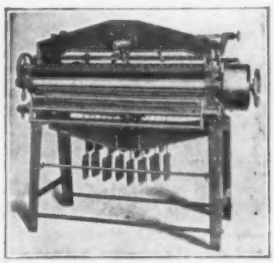
45 YEARS PRACTICAL EXPERIENCE



in building Spring Needle Knitting Machines. Have succeeded knitting the finest and the coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge. Our Machine is of the highest class.

Robt. W. Gormly and Company,

Troy, N. Y.



The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

Also have other labor-saving devices, and upon application you can get prices and full information on same.

Joseph A. Firsching, 614 Broad Street Utica, N. Y., U. S. A.

HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

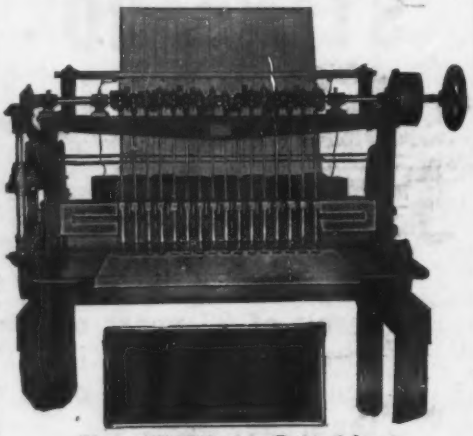
If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

"Maniplex" Sewing Machines



For Multiple Stitching

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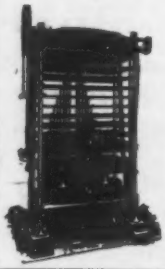

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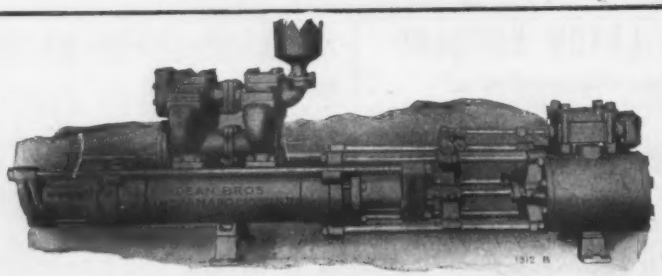

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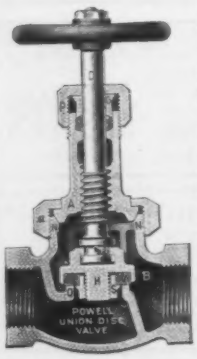

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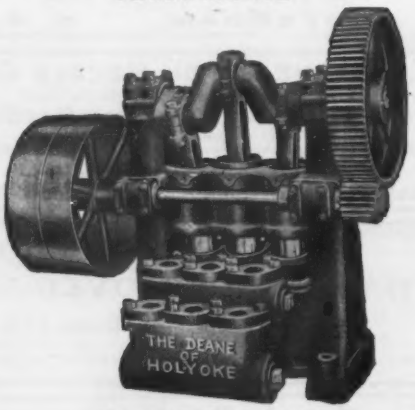

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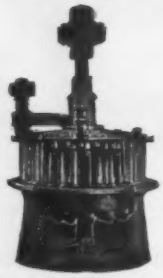

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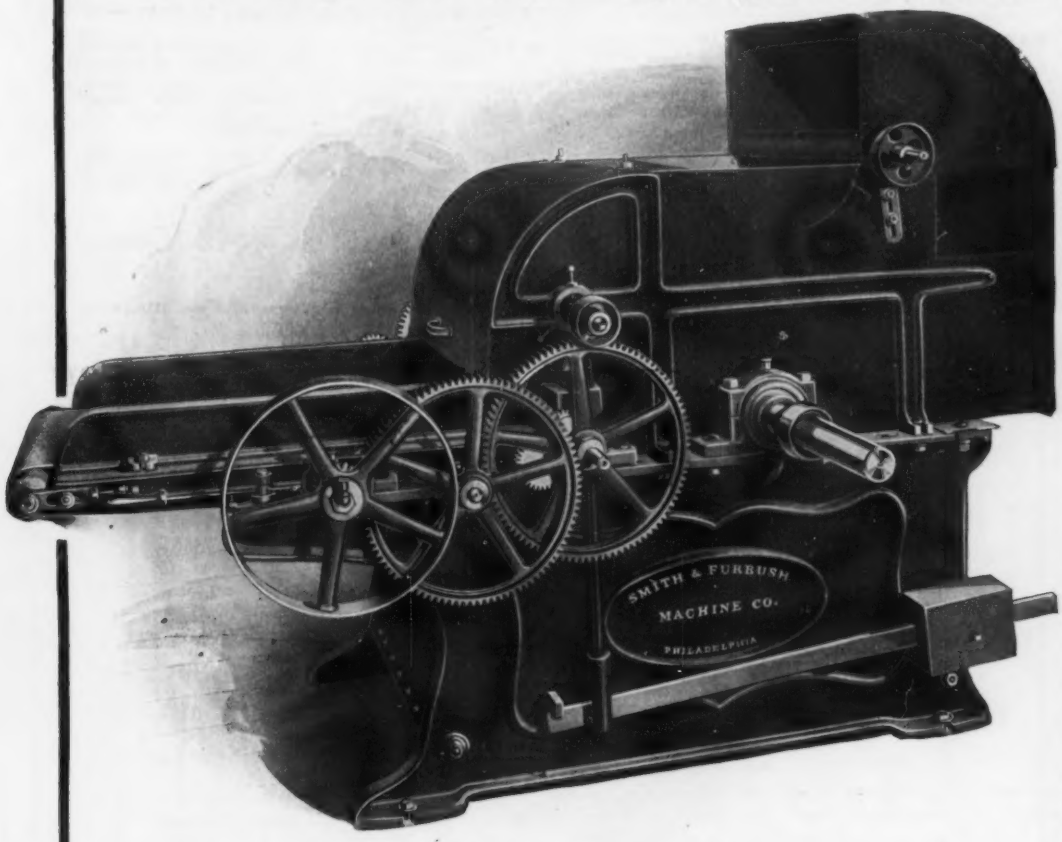
For Reducing to Shoddy all Grades of Wool, Cotton Rags or Clippings, Yarn Waste, Jute, etc.



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Iron and Steel Construction
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Saving of 25% to 40% Horse Power

This machine has an iron cylinder jacketed with wood lags fitted with special teeth, removable iron top cover with provisions for picker grinder wheel, improved arrangement for feed roll weight levers, and self-aligning and self-oiling annular ball bearings for cylinder which produce a saving of at least 25% in operating horse power.

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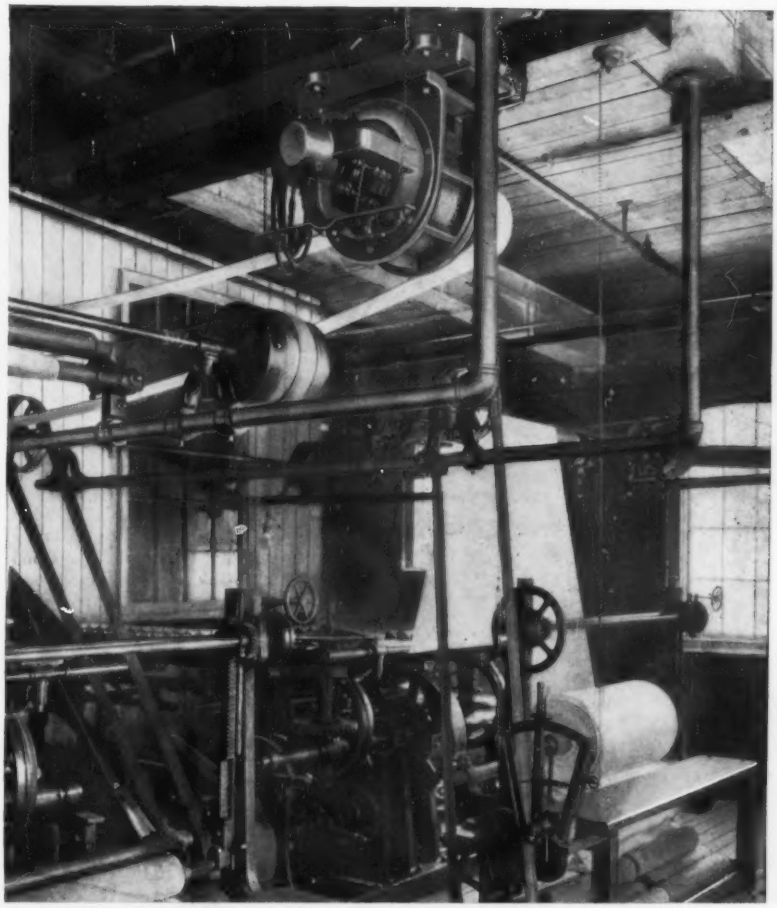

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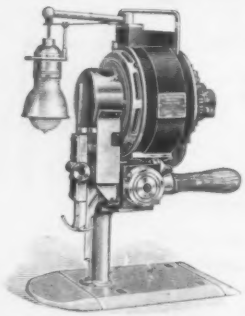

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